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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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LAKE COMMERCE AND CARGO BOATS.

Charles H. Keep, Esq., of Buffalo, Secretary of the Lake Carriers' Association, appeared before the Industrial Commission on Tuesday, while it was in session at Washington, to testify regarding the development of lake transportation. Mr. Keep directed particular attention to a series of tables which he presented for the use of the commission in comparing the bulk of freight transported on the lakes with that of various railroads and trans-oceanic lines. In the course of a year he said two-thirds more freight would pass through St. Mary's river than through the Suez canal.

Taking the largest vessel as an indication of general freight conditions Mr. Keep reached the most gratifying conclusions as to the growth of the lake traffic. In 1891, for example, the largest vessels in use on the lakes were of about 3,500 tons burden. To-day vessels of 8,000 tons were in almost common use and next year would see the launching of several vessels of 9,000 tons.

Methods of handling freight had improved, he said, almost in the same ratio. To prove this the witness exhibited several illustrations of vessels loading and unloading twenty years ago and compared them with the freight elevators now in use at Buffalo and other important lake cities.

Replying to questions by members of the commission he stated that freight handling in Buffalo was done by several firms virtually combined into one, and it was his opinion that such combination had materially reduced the cost to the buyer and the shipper.

MORE CANALIZING.

A bill has been introduced in the Senate which provides for the incorporation of the Lake Erie & Ohio Ship Canal Co. The canal provided for in the bill is designed to connect Pittsburg with Lake Erie, in order to give to the Pennsylvania city the benefit of Lake Superior ores for its great manufactories. Should the proposed canal be built, it would follow the Ohio river northwestwardly from Pittsburg to Youngstown, O., thence following the Mahoning valley to Niles, and from Niles going northward in the Grand river valley to Ashtabula, on Lake Erie. The plan is for a canal fourteen feet in depth the entire distance. It is expected that when built it will be utilized by boats running from the iron mines of northern Michigan to Pittsburg without breaking bulk. Such vessels carry 2,000 to 4,000 tons. A private company stands ready to build the canal, on the assent of the federal government.

A UNIFORM CODE OF STEERING ORDERS.

The question of the necessity of an understanding being arrived at between all the maritime nations with reference to the general adoption of a uniform code of words to be used in giving orders to the man at the helm, cropped up again at a meeting of the German Shipmasters' Association at Hamburg on the 3rd ult. The subject, of course, is not new; it has been discussed and commented upon in our own as well as other countries, off and on, for years past—of late years, however, more in Germany than anywhere else, although the Nordisk Shipowners' Society has likewise had the matter under consideration. It was rather fully dealt with in Fairplay on the 24th February, 1898, and since then the question has apparently slumbered, until it was brought before the above-mentioned meeting the other day. The Germans have made up their minds that the new century commenced on the 1st January, 1900, and the question discussed (among other things), at the meeting of shipmasters was whether it would not be in keeping with the fitness of things that the long-talked-of reform in the method of passing orders to the steersman should be effected at the beginning of the new century. No doubt confusion may sometimes arise from the fact that at present there are three different ways of ordering the helm movements: first there are the ancient expressions of "port" and "starboard," meaning that the tiller should be moved in those directions; secondly there are the orders to "port" or "starboard," referring to the direction in which the head of the ship is to be turned, and this was introduced on board vessels of the German Imperial Navy in 1880; thirdly there are the direct orders "right" and "left," now in use on board the ships of one or two of the great German shipping companies. A lively discussion arose at the meeting of German shipmasters above alluded to, which ended in a consensus of opinion that the introduction of a uniform, direct, and international code of steering orders was eminently desired, but the old stumbling-block was still in the way of "how to bring it about." Eventually a resolution was passed to the effect that "the Imperial Government should be requested to enter into negotiations with the Governments of other maritime nations on the subject of the introduction of a uniform international system of giving orders to the helmsman which shall express the direction in which the head of the vessel shall be turned." It is to be feared, however, that the difficulties besetting a reform of this kind will not cease to militate against its universal adoption.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—PENNSYLVANIA.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., February 15, 1900.

ERIE LIGHT STATION.—Notice is hereby given that the light at this station, on the high bluff of the southerly shore of Lake Erie, to the eastward and just outside of Erie harbor, will not be relighted, having been permanently discontinued.

The light showed fixed white and was of the third order.

SAND BEACH (HARBOR OF REFUGE) LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1900, the color of the tower at this station, just inside the northerly side of the easterly entrance to the harbor, westerly shore of the lower part of Lake Huron, will be changed from brown to white.

By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear-Admiral, U. S. Navy, Chairman,

THE steamer John E. Hall, Capt. Timothy Donovan, will be placed in dry dock for a new Sheriffs propeller wheel.

APPROPRIATIONS FOR RIVER AND HARBOR IMPROVEMENTS.

There has been some ill-feeling recently expressed at minor lake ports because no river and harbor appropriation bill was being introduced at this session of Congress.

According to a detailed statement made out at the request of Hon. T. E. Burton, Chairman, Committee on Rivers and Harbors, dated January 24; Gen. John M. Wilson, Chief of Engineers, U. S. A., there is a total unexpended balance available January 1, 1900, of nearly \$7,000,000 exclusive of works for which provision is made by permanent appropriation, by which is meant, as we understand it, the continuous contract system.

LAKE SUPERIOR POINTS.

Grand Marais.....	\$ 30,502	Keweenaw Point...	\$296 307
Agate Bay.....	64,892	Marquette.....	4.059
Duluth, Superior....	172,176	Marquette Bay....	29,077
Ashland.....	28,710	Grand Marais.....	15,607
Ontonagon.....	8,167		
Total.....			\$649,502

LAKE MICHIGAN.

Menominee.....	\$ 4,966	Calumet Harbor.....	\$161,650
Menominee.....	885	Calumet River.....	49,720
Oconto.....	1,429	Illinois River.....	73,893
Green Bay.....	9,002	Michigan City.....	3,887
Sturgeon Bay.....	14,297	Outer harbor.....	85,452
Sturgeon Bay.....	842	St. Joseph.....	37,013
Ahnapee.....	1,802	South Haven.....	40,247
Kewaunee.....	1,279	Saugatuck.....	2,855
Two Rivers.....	3,468	Kalamazoo.....	14,980
Manitowoc.....	4,912	Holland.....	16,954
Sheboygan.....	27,621	Grand Haven.....	19,574
Port Washington.....	2,573	Grand River.....	60,953
Milwaukee Bay.....	14,433	Muskegon.....	52,508
Milwaukee.....	9,174	White Lake.....	31,610
South Milwaukee.....	278	Pentwater.....	3,916
Racine.....	35,007	Ludington.....	25,890
Kenosha.....	29,147	Manistee.....	26,635
Waukegan.....	5,492	Portage Lake.....	74,019
Fox River.....	20,326	Frankfort.....	33,463
Chicago Harbor.....	103,933	Charlevoix.....	18,255
Chicago River.....	298,284	Petoskey.....	21,170
Total.....			\$1,377,270

LAKE HURON.

Cheboygan	\$ 4,451	Black River.....	\$ 4,782
Alpena.....	2,940	Pine River.....	1,913
Saginaw River.....	51,697	Belle River.....	4,699
Sebewaing River...	35,954	St. Clair Flats.....	3,059
Sandbeach	147,684	Clinton River.....	7,130
Black River.....	5,875	Rouge River.....	13,619
Total.....			\$242,712

LAKE ERIE.

Monroe.....	\$ 4,910	Fairport.....	\$120,535.
Toledo.....	129,069	Ashtabula.....	43,712
Port Clinton.....	6,346	Conneaut.....	95,202
Sandusky.....	57,834	Erie.....	78,459
Huron.....	25,000	Dunkirk.....	1,741
Black River.....	45,963	Buffalo.....	798,204
Cleveland.....	391,623	Buffalo.....	21,075
Total.....			\$1,819,680

LAKE ONTARIO.

Wilson.....	\$ 2,233	Little Sodus Bay....	\$ 2,987
Charlotte.....	1,843	Oswego, N. Y.....	34,557
Pultneyville.....	975	Cape Vincent.....	49,577
Great Sodus Bay....	7,071		
Total.....			\$99,249

In addition to the foregoing there is a total of \$2,654,827 divided as follows: St. Mary's River at the falls \$868,672 and \$100,000 for Hay Lake channel. Illinois and Mississippi canal \$1,033,703. Survey of upper Illinois and Des Plaines river \$18,696. The twenty-one foot channel \$447,279. St. Clair and Detroit rivers \$141,078. Tonawanda river and harbor \$24,206. St. Lawrence river \$21,193, and Ogdensburg harbor \$15,000, making a total of nearly \$2,670,000.

Salvage—Amount of Award.—The absence of other assistance is an important element to be taken into consideration in determining the amount of a salvage award. The Boyne, 98 Fed. Rep. (U. S.) 444.



CHICAGO.

Special Correspondence to The Marine Record.

Capt. Tyler Morley, of Marine City, is in Chicago this week.

Jas. A. Calbick & Co. chartered the steamers Amazonas, Bermudas, Nicaragua and barge Paisley for corn to Buffalo or Kingston at shippers' option at going rates.

Capt. Hubbard is one of the leading members of the Shipmaster's Association. He was elected second vice-president of the grand lodge at the annual meeting which was held recently at Buffalo.

The second steel schooner building at the South Chicago yard of the American Ship Building Co. will be named Marsala. She will be a duplicate of the Madeira, launched a few weeks ago. She is to be ready for business by the opening of navigation.

Capt. Ole Hanson, of Manitowoc, purchased the schooner Winnie Wing from Capt. Peter Petersen for \$2,800. The latter intends to live ashore in future, and his many friends wish him long life to enjoy the fruits of his many years of toil on the lakes.

The going rate on corn to Buffalo this week is 2 3/4 cents, and the following steamers and barges have been chartered: Samoa, Oglebay, Beilman, Mary McLaughlin, Armenia, City of London, City of Venice and Iosco at this port and Yale at South Chicago.

The work of improving the harbor at Racine will begin about April 1. Over 900 feet of dock will be built on the north side of the river, thousands of yards of dredging removed, the stream widened to 60 feet and a uniform depth of water dredged twenty-one feet. The appropriation for the work amounts to \$140,000.

A few days ago I was conversing with an old grain trimmer, who is now a well-to-do tradesman in this city. He informed me that in 1867 he trimmed the cargo of the schooner Minto Mitchell amounting to 9,200 bushels of corn in about two hours alone, and received \$20 for his work from Capt. Wm. Gambell, master of the schooner.

The steamer S. S. Wilhelm and consorts Nirvana and Galatea was chartered for corn to Kingston at 4 1/2 cents for storage and delivery, and the steamer Niagara for corn to Buffalo, Erie or Fairport at 2 3/4 cents. The steamer Oregon and consort S. H. Foster for corn to Port Huron at 2 1/4 cents for storage and delivery.

The Lydon and Drews Co. have begun dredging the south fork of the Chicago river at the expense of the sanitary district, for the relief of the dock owners whose property has been rendered worthless by the reduced level of the water in the fork. Two years ago the United States government dredged the fork over this route to 17 feet below datum, and now the drainage board will make it 20 feet below datum. The dredging will extend over 14,385 feet, or nearly 2 3/4 miles.

Johnson & Knudsen, ship carpenters are giving the steamer Isabella J. Boyce a new stem and stern, 15 new stern planks, new deck aft, new hatch coamings, and 70 feet new rail, the barges Galatea and Nirvana had their topsides calked, the steamer Thomas Cranage is receiving a new deck of 3 by 5 inch plank, the schooner Thomas H. Howland is receiving new deck beams, decks, and having her topsides, ceiling and floors calked.

The Licensed Tugmen's Protective Association, Chicago No. 2, have procured their charter and formed a strong organization, 128 members having already joined it at this port. The officers are George McDonald, president; George McElvey, vice president; Tom. Hunter, treasurer; James Dwyer, financial secretary; Alexander Langto, corresponding secretary; Hugh Harmon, recording secretary. The association hold their meetings weekly at the LeGrand Hotel hall on Wednesday evenings.

President Graham, of the Graham & Morton Transportation Co., sends out word from St. Joseph that the contract had been let for a new \$200,000 boat to ply between St. Joseph and Chicago. The work on this new boat, which will be a twin screw propeller, will begin the third week of July next. The length of the new boat will be 215 feet over all. The ordinary speed will be eighteen miles per hour, and under full pressure will be good to make twenty-one miles. This new steamer will have a capacity of 1,500 passengers and 980 tons of freight. The boat will draw thirteen feet of water. The craft to be delivered in the spring of 1901.

The steamer Jesse Spaulding, which became unmanageable while being towed from her dock in the south branch of the Chicago river and got wedged across the stream, was released by tugs as soon as the effect of the raising of the dam at Lockport was felt. President Boldenweck of the sanitary board said that the accident was due more to the carelessness

of the tug men than to the current of the river produced by the Chicago drainage canal. Be this as it may, the first instance of a dam in the river of a steel cargo boat has taken place and shows a handy way to check the current so as to give a better draft of water below the obstruction.

The steel steamer Manitou of the Lake Michigan & Lake Superior Trans. Co. has been sold to a newly organized corporation known as the Manitou Steamship Co. She is to be kept on the route between Chicago, Mackinac Island and intermediate east shore points. Officials of the Lake Michigan & Lake Superior line will not disclose the interests to which the boat has been sold, but they are said to be closely allied to the old company. The Manitou was launched at South Chicago in 1893 and has been in continuous service since. The remaining four steamers of the Lake Michigan line will be operated as freight and passenger carriers between Chicago and Duluth. I wonder how the Manitou has succeeded in getting the peculiar reputation which she has

BUFFALO.

Special Correspondence to The Marine Record.

Capt. James Corrigan, accompanied by F. S. Masten, Esq., from the office of A. D. Goulder, Cleveland, were here this week on vessel business.

Capt. Adam Hartman has been appointed manager of the tug fleet at the Tonawandas. His tug line was recently absorbed by the Great Lakes Towing Co.

Another conference was held between the strikers at the Union Dry Docks and Superintendent Gaskin on Tuesday, but a settlement of the trouble was not made.

Capt. John H. Parsons, of Oswego, N. Y., has presented the sons of Gov. Roosevelt with a miniature full rigged yacht, nearly five feet long, and an exact model of the American yacht Volunteer, which defeated the British boat Thistle. The lads are expert in sailing miniature yachts.

Were an international commission arranged and made operative, the "Soo" power canal and the Chicago drainage canal would come under more intense investigation and control, and personal scheming would give way to practical endeavor in formulating plans for regulating the levels of Lake Erie and the waterways beyond.

Representative Alexander's bill, providing for the building of a marine hospital at Buffalo, is again in the hands of the Committee on Public Buildings and Grounds, having been returned by the Treasury Department, endorsed with the approval of the Secretary. As the bill now stands, it provides that the building shall have a site of not less than an acre, that the site shall not cost more than \$25,000, and the building not more than \$101,000. This makes the total \$126,000. The medical officer is to have a separate residence, and unattached buildings will be a mortuary, insulated ward and other outbuildings.

Judge Braunlein of the Municipal Court handed down a decision in the action brought by the Corporation Counsel against the Union Iron Works to recover penalties for the employment of four non-licensed engineers in the works. The complaint was that the men, who were non-licensed engineers, were employed in the iron works to handle levers operating ore buckets. It was stated that these men had partial control of the steam supply of the engines in the works, and performed work that required special knowledge. The company answered that a competent licensed stationary engineer was in charge of the power plant at the work, and there was no more reason for licensing the four men complained of than licensing elevator conductors. Judge Braunlein is against them on this contention, and it is expected they will appeal from his decision.

If the little steel steamer Jesse Spaulding can't be handled in Chicago river on account of the current, we may expect Chicago coal freights to soar away up this summer. Owners are not going to give us their boats to charter, said a broker the other day, to make temporary bridges of in Chicago creek, though South Chicago is all right, I expect to be euchred out of many a Chicago charter this summer on account of the unsafe condition in the river. As far as vessels are concerned they will now approach the harbor stern first and proceed up the river heading down, or lakewards, besides having lines out "all fours" ready to straighten up either end. Its a fair wind though, for the coffers of the owners of tug boats and a good thing for Chicago generally; otherwise, it is a case of "B—you Jack, I'm all right."

In answer to protests from foreign buyers that Northwestern grain exported from this country is graded to deceive, Chief Inspector Reishus, of Duluth, has had the temerity to insinuate that responsibility for the deceptive practices rests on Buffalo forwarders. J. D. Shanahan, chief inspector of grain at Buffalo, who has been in office for fourteen years, throws the insinuation against this port back to Duluth, and asserts most positively that extraordinary measures are taken at this port to prevent the wheat being mixed during transfer through the elevators. Even grain of similar grade is not bulked, he says. He charges that during the past season Duluth grades below No. 1 hard have been very uneven. He advocates that government experts grade all export wheat, so that the grain interests of the country will be fully protected.

The five-masted schooner Governor Ames recently received what is thought to be the record amount of demurrage on a coal cargo at Baltimore. She had been under charter since shortly after Christmas, and besides receiving \$2 per ton for 3,000 tons of cargo was given \$180 each day for all days over six which she was delayed.

PORT HURON

Special Correspondence to the Marine Record.

The barge Board of Trade is being repaired and calked in Black river.

Capt. and Mrs. Wm. McAlpine and son, of Detroit, are visiting at the home of Richard Moore.

A large gang of men are at work on the different boats in Black river getting them in shape for navigation.

Capt. A. B. Chambers was called on Saturday to Port Robinson on account of the death of his father.

The barge Amazon was taken on Saturday afternoon from the Grand Trunk elevator to her winter quarters at Thomson's dock.

The United States marshal will sell the schooner I. L. Quinby at public auction on Feb. 23, to satisfy a claim against her.

Capt. Wallace Kelly will sail on salt water until the opening of navigation on the lakes. He expects to leave for Boston on Monday next.

The marine engineers celebrated their 16th anniversary at their rooms in the Boyce bank building on Tuesday evening. Ninety people were in attendance. There was card playing and refreshments.

The work on the overhauling of the machinery of the barge M. S. Green which has been in progress for some time will not be completed for several weeks. When finished she is expected to be as good or better than new.

There has been a report going for several days that the steamer James H. Shrigley has been sold to Cleveland parties. This was denied by those to whom the vessel was said to have been sold. However, it is said that there are several parties after the steamer, since it is known that she is on the market, and the report is that she will be put into the lumber carrying trade this year.

As an indication of the excellent business expected by the vesselmen for the coming season, Colin McLaughlin was offered a large price a few days ago for his interest in two boats but refused. There is a demand for boats already and heavy prices are being offered and just as often refused. The owners evidently have the same idea as the would-be buyers, of the expected high freights and prefer to hang on to their interests and take chances.

The canal sized steel steamer which is being built by the Jenks Ship Building Co., will be 257 feet over all, 40 feet beam and 26 1/2 feet depth of hold with a 4 foot water bottom. She will have all modern improvements, including steam steerer, steam capstans and electric lights. The engines are 17 1/2, 28 and 47, by 40 inches stroke, and two boilers, 11 by 12 feet, which will be allowed 180 pounds of steam. The other steamer which will be equipped with all of the above modern improvements, will be 440 feet over all, 50 feet beam and 28 feet depth of hold, with a 5 foot, water bottom. Her machinery will be 23, 38 and 63 by 40 and her three boilers 12 1/2 by 12 allowed 180 pounds of steam.

A telegram was received in Port Huron on Friday by Mrs. A. A. Cox, stating that her husband, Capt. Alonzo A. Cox, had been killed at Duluth by falling down stairs. Capt. Cox was one of the best known masters on the lakes and had sailed since boyhood. For the past two years he has been connected with the Inman Towing Association. He leaves a wife, two daughters, Miss Hattie Cox, of Port Huron, and Mrs. F. A. Beard, of Flint, and one son, Clinton Cox, of Flint. Capt. Cox sailed some of the best steamers on the lakes. Tugs: Mocking Bird, C. L. Boynton, C. D. Thompson, Stranger; Steamers: Burlington, City of Berlin, Thos. Adams, Jessie Farwell, B. W. Arnold and Roanoke. He has sailed the tug Record for Inman of Duluth, in whose employ he was when he met his death. The captain was the owner of some very fine real estate in this city.

In the suit of Wm. G. Jenks against the Manhattan Steamship Co., for \$50,000 damages for the failure to carry out its contract in the chartering of the vessels H. E. Runnels and Lloyd S. Porter, Judge Vance on Saturday afternoon filed an opinion upon an important legal point involved. When the vessels were chartered Jenks insisted on a guarantee bond, stipulating responsibility for the faithful performance of the provisions of the contract, also containing an agreement that if suit should be necessary on the bond service of process might be made on F. T. Wolcott, judge of probate, and he could enter the appearance of defendants. Subsequent to the commencement of the action by Jenks and after Wolcott had entered the appearance of the defendants the latter sought to revoke the designation and filed a motion in court to set the service on Wolcott aside, alleging his appointment to have been illegal. Judge Vance holds the appointment to have been good, and the service was proper, the provision in the bond being sufficient authority in law for Mr. Wolcott to enter the appearance of the defendants.

Lake Superior, Michigan, Ontonagon Pier Head light-house destroyed December 12, 1899, the structure from which the fixed red light was shown on the outer end of the west pier at entrance to Ontonagon harbor, was swept away in a violent snow storm. The structure will be rebuilt and the light reestablished at the reopening of the season of navigation.—Hydrographic Office Notes.

DETROIT.

Special Correspondence to The Marine Record.

F. H. Hackett, of Amherstburg, has bought the little steamer Walter H. Stone from Mrs. Emma Meyer. He will use her for towing, after giving her a partial rebuild.

The steamer Sterling that has run for some years between Toledo and Monroe Piers, has been sold by J. B. Dewey & Sons to Boynton & Thompson and Capt. Burnham of Port Huron. She will run between Algonac and Port Huron.

The steamer that will run between Toledo and Detroit during the coming season will very likely be the steamer Greyhound. She has been nearly rebuilt, has feathering wheels and will make better time than ever.

The owners of the new steel steamer Admiral, are incorporated under the name and title of the American Steamship Co. Another line of the same name is the fleet of the American Steel and Wire Co., known as the American Steamship Co., Duluth, Capt. A. B. Wolvin, manager.

It is expected that the steamer Harlem, now undergoing extensive repairs at Craig's shipyard will be finished in about 30 days. Her owner, Capt. Nagle, expects to have her chartered and to carry the first grain out of Toledo for Buffalo. This is the steamer that was piled up all winter, also a year ago, on Isle Royale, Lake Superior.

Duluth papers seem to make some very erratic statements regarding the weather up there, it would appear that one day it is announced that the harbor and bay is clear of ice and within forty-eight hours they put gangs of men to work cutting ice. A few more reports like we have been reading during the last couple of week, and we can leave the men cutting ice by paying no attention to the reports.

The Canadian Court of Appeal is hearing the case of Smylie vs. The Queen, which is the fight of the Michigan lumbermen to test the constitutionality of the Order-in-Council of Dec. 7, 1897, providing that every license issued after April 30, 1898, to lumbermen, should contain a condition that all pine cut under such license should be manufactured into sawn lumber in Ontario. The lumbermen are appealing from the decision of Mr. Justice Street, who held that the Crown had the right to alter the terms and conditions of timber limit licenses or renewals. H. J. Scott, Q. C., appears for the appellants and S. H. Blake, Q. C., for the Canadian Government.

Gapt. J. G. Warren, Corps of Engineers, U. S. A., who was directed to survey the Menominee river in Michigan and Wisconsin with a view to improving the harbor at Marinette, Wis., has reported favorably on the project. The plan proposed is to secure a channel having an actual depth of 18 feet below the datum plane, and 200 feet wide up the river a distance of 6,000 feet, then 100 feet wide for 2,600 feet, then 75 feet wide for 475 feet, terminating in a turning basin having an extreme width of 450 feet for a length of 450 feet, then diminishing to 250 feet for 600 feet. The cost of this improvement, including dredging and the excavation of rock, is estimated at \$60,000 and \$5,500 annually for maintenance.

It is officially stated that the Pere Marquette railroad system has decided to abandon its car ferry service between Muskegon and Milwaukee, and send all Michigan freight by way of Ludington, that port being regarded by the officials as the best receiving point for all business coming from the north-west. It has been decided to build another car ferry boat for the Ludington route. The new boat will cost \$350,000, and be the biggest car ferry in the world. She will handle 40 cars, eight more than the carrying capacity of the big Pere Marquette, at present on that route, and a length of 500 feet is being talked of. The plans and specifications for the new ferry have been got out and all preliminaries arranged for the time when material can be delivered at the point where the keel is to be laid.

Vessel owners and owners of property along the river front are circulating a petition to the common council and the board of estimates asking that the estimate of the police commissioners for a patrol boat be allowed. The petitioners say that they are paying taxes on millions of dollars worth of property which can only be thoroughly protected by boats patrolling the river. They point out, too, that these boats would be very useful in saving life in cases of accidents to sail boats, which accidents are continually recurring, and in case of fire on board vessels moored to the wharves they could be used to haul the burning vessel out into the stream. For vessels lying at anchor in the river these boats would furnish the only real protection possible. A. A. Schantz, of the D. & C. line, has the petition in charge, and it has been numerously signed this week.

Prominent members of the Lake Carriers' Association realize that the Canadian government must be in accord with any project for the regulation of the flow of water through the chain of lakes, or action might be barred; and that legislators in Canada and this country must be properly educated in the schemes necessary to regulate the flow of these waters, or practical measures will not be carried out. At the present time the need is strong for joint action by the two governments to settle upon a policy which will direct such legislation as may be enacted in the matter of regulating the levels of the Great Lakes. It is generally conceded that deep-draft vessels cheapen transportation of western produce to the Atlantic seaboard, and ore, coal and lumber between lake ports, providing very essential aid to meeting trade competition in the markets of the world, and therefore justifying any practical plan by which the waterways of the Great Lakes will be deepened.

In years past logs were cut in Canada, floated across Georgian Bay, and sawed in the United States. Last year the Canadian Parliament passed an act compelling the sawing on Canadian soil of all logs cut on Crown lands in Canada, thus barring the exportation of logs. This was supposed by many to be retaliatory in consequence of the import duty of \$2 per thousand feet upon sawn lumber exported to the United States, or the rather higher duty upon what is technically called "dressed" or "worked." The Canadians say that the act was passed as a protection to Canadian labor. In any case, our saw mill machinery is being moved to Canada, just as it will be later to the Pacific coast.

During the summer months the steamer Arundel will be operated on the Lake Ontario route as formerly, and the charter of the White Star line ceases so long as she is away from the river. For many years back pools have been formed, and all the boats of both the White Star and Star-Cole lines were run for mutual interest. The pool expired this month, and it was rumored at one time and another that the White Star line, so strongly reinforced by the addition of the Tashmoo, would attempt to compete forcibly with the Star-Cole line, which has been materially weakened by selling the steamer Darius Cole. Manager Lee, of the Cole line stated last winter that he would fight if he had to, but he would much rather settle. Practically the only change will be in the name, which, instead of being the "Red, White, Star, Cole line" will be simply the "White Star line."

CLEVELAND.

Special Correspondence to The Marine Record.

Capt. Frank Brown, last season mate on the steamer Fred Pabst, will sail the barge Armenia this season. The Armenia will be the consort of the steamer W. H. Wolf.

Mr. Peck, of the firm of Page Bros. & Co., manufacturers of ship's lamps, oils and electric fixtures, Boston, Mass., visited Cleveland this week and called upon builders, owners and others in the interests of the firm.

Mr. Russell, of the firm of Russell & Watson, Main street, Buffalo, makers of the well-known patent fluted lens, Buffalo signal lamps and the Buffalo wrought steel ranges, was here on business this week, en route for the west.

The Gaylord Iron Co., Detroit, chartered several boats this week at \$1.45 on iron ore from the head of Lake Superior and \$1.25 from Marquette; the contract calls for the delivery of about 40,000 tons to extend over the season.

The little steamer Swan has been sold by Captain George Douglass, of Cleveland, to Captain Leroy Silverwood, of Port Clinton, who will give her a thorough overhauling and put her in the fish trade from Lake Erie fishing grounds to Sandusky, and in the plaster carrying trade between Martin's Point, in Sandusky Bay, and Cleveland.

Nothing less than lump sum season charters are talked of now. It is no longer a certain rate per ton, a specified number of trips, or a case of go as you please from port to port, but an out and out season charter, for the charterer to have and to hold, etc., etc., for the whole season of navigation. The last figure heard for a 3,000 ton boat is \$40,000 for the season, and it's not cent too much, either.

An extra 10 cents per ton on coal to Chicago might cover chances on getting stuck in the river, or go towards paying for damage done to center piers, bridges or property abutting on the river, in any case, it would help to defray dry dock and hull repair charges. Chicago creek will be a safe enough discharging and loading point when people get used to the current, the only detail is in getting used to it.

Capt. Day, ships-husband of the fleet owned by the Pittsburgh Steamship Co., is pleased with the statement in last week's RECORD about placing raised platforms on the tank tops of the iron ore carriers, he said that such a plan would make it easier on the hulls and be handier in loading as well as discharging. In the early days when he carried ore in schooners they always took a deck load on, so as to make the vessel easier in a seaway, and the same principle applies to the iron and steel boats.

With the launch of the James J. Hill on Saturday, the Lorain yards of the American Ship Building Co. will have put afloat nearly 1,000 feet of high classed steel vessel construction within a period of five weeks. The recent launch at the Chicago yards of the company and the hull now almost ready for launching here, will string out about one-third of a mile of steel cargo boats, that, in the parlance of the down-easter, could lick all 'tarnal creation to reproduce in time, class and ability. There is a smack of Cleveland being the Clyde of the lakes in this building by the mile and launching in section style.

Alex. Brown, for some time wheelsman on the Shenango and for the past season engaged in the same capacity on one of the big lake freighters, has passed the examination and been given first mate's papers. This will be good news for "Brownie's" friends in Conneaut.—Post-Herald, Conneaut, O. The foregoing is one more secret that I can relieve the oath bound officers of the steamboat inspection service from divulging, and when the licenses get "hung up" aboard the ore drogers, there'll be a chance to find out a good many more before they can make up their reports of this year's work and send it to Washington next year. Even then I'll have several months to go and come on before the public printer gets the report ready for mailing. Finding out these secrets of the steamboat inspector's office reminds me of going huckleberry hunting in the juvenile picnic days. I only wish the RECORD would pay me for doing nothing else. I'd license every fresh water impostor on the lakes.

Harvey D. Goulder, Esq., counsel for the Lake Carriers' Association, in his testimony at Washington last week re-

garding the "Soo" power canal, stated that the organization he represented must be considered as being present at the meeting in a mere advisory capacity, and could not be said to be opposed to the project generally speaking. However, Mr. Goulder went on to show that the canal was a menace to the commerce of the lakes and that the lowering of the level, if only an inch, was a matter of very material interest to vesselmen. He estimated the value of floating property on the Great Lakes to be \$500,000,000. Of this amount \$100,000,000 is allotted to boats and the balance to dock and other improvements in this line along the chain of lakes.

Fixtures ahead for \$1.25 per ton on iron ore from Lake Superior with the privilege of coal up at 50 cents shows fair returns for a boat that finishes up the season without having had any casualties. On the other hand, if one or two boats in a fleet meet with serious trouble, such as collision, stranding or fire, the net earnings of the whole are cut down to moderate figures, and it is just the same if there is detention experienced at loading and discharging ports. The entire lake fleet is about chartered for iron ore and the output at the mines is greater than ever known before, all of which is to be sent forward by lake if possible. Those engaged exclusively in the iron ore trade have all the ruling conditions exactly at their finger tips; they have figured ahead, hedged, and figured again, both ways and all ways, on output, transportation and freights. Having chartered vessels to carry 18,000,000 tons, it is said that the total requirements at this end calls for 2,000,000 tons more. If this is so, unchartered vessels can always pick up going rates and hold for the \$2 per ton and upwards later on; however, with the Rockefeller, Carnegie, Hanna, Pickands-Mather, Corrigan and American Steel & Wire Co., with several other mining, transportation and consuming interests buckled together, all owning large fleets and using their own products, there is but a scant harvest left for the actual and individual vessel owner, as such.

DULUTH-SUPERIOR.

Special Correspondence to The Marine Record.

Freights are at a standstill this week. The last rate was 3½ cents on wheat to Lake Erie, 3¼ cents is now the nominal offer, though in fact there is no chartering.

Mr. Louis Cartier, of Ashland, made a trip to Manistee, Mich., last week, and while there purchased the tug Smith. She is a good sized and fairly powerful boat and will be used in the regular towing business at Ashland as well as log towing, and in fact anything to keep her busy.

The Great Northern Railroad Co. is to build this year, from the Mesaba iron range to the head of the lakes, a new line, which, it is said, will cut off thirty-six miles of haul. The road will be fifty miles long and will cost \$1,200,000. It will parallel at a distance of about three miles the line of the Duluth, Mesaba & Northern from Columbia Junction straight north to Nelson on the Hibbing branch of the Great Northern. All ore originating on its line east of Hibbing will be taken over this new line after 1900. The Great Northern is planning to handle this year 2,200,000 tons of ore—three times its business last year.

C. W. Turner, general manager of the A. Booth Packing Company, states that he has hired captains and engineers for the Dixon and Hunter for the coming season. Capt. J. F. Hector will command the Dixon, on the Port Arthur Isle Royale route, and James Evans will serve as first engineer. Capt. Ed Smith will command the Hunter, and George Bellior will serve as first engineer. How about a new boat for the Duluth, Port Arthur, Isle Royale route? he was asked. I cannot say for certain. We have an option on a new steel steamboat, 175 feet long, 28 feet beam, with a licensed capacity of 600 passengers, and a guaranteed speed of 17 miles an hour. As to whether or not we shall make the purchase is, as yet, uncertain.

Frequent protests are received from foreign ports that Northwestern grain shipped from this country is not up to the grades assigned to it. Chief Inspector Reishus of Duluth, in answer to these complaints, says that he is not to blame and that he is sure that all Northwestern wheat, when it leaves Duluth for the seaboard is fully up to the grades assigned to it by the inspectors. He accounts for the deterioration in grade by professing to believe a "charge" that the best Minnesota and Northern wheat is mixed in Buffalo elevators with inferior wheat from Nebraska, Iowa, Kansas and other states. Mr. Reishus qualifies this by the statement that there are other reasons, besides that of mixing, that might account for the deterioration of Northern wheat when delivered in France. He says that wheat is liable to become bin burnt, is liable to sweat in cargo and to become moist and musty.

The recent purchase of 1,000,000 acres of Washington timber lands from the Northern Pacific by the Weyerhaeuser syndicate was not, according to the direct information of Eastern lumbermen, with the view of holding the land for speculative purposes; but the primary object was to find a location for the thirty or more lumber mills owned by the syndicate operating in the Mississippi valley, where the timber is becoming scarce. That these mills will be moved one by one to the new acquisitions on the coast as rapidly as the timber in sight at the present locations is exhausted is the general belief of all Mississippi valley lumbermen. "We are forced out of the white pine forests of Wisconsin on account of the scarcity of timber," said James McCrossen, of Wausau, Wis. "The coming timber district of the world is on the North Pacific coast, and lumbermen all over the United States are aware of it. A few years ago we bought timber lands in the state for speculation, but it is not so now."

DEPOSITS OF IRON ORE.

Respecting the supply of iron ore in the Lake Superior ranges, Iron Ore stated recently that there are mines yet to be found. The Marquette range has tracts of land upon which little has been done and much has been looked over in a haphazard way. To the west of Ishpeming there is a chance for the finding of new mines. In the vicinity of Negaunee there may be new deposits added to the present number, but additions in the past ten years have been few. The Menominee and Gogebic ranges have been fairly well explored, and the Minnesota fields are showing little in the way of recent discoveries. All of these millions make sad looking holes in the mines, and the present reserve looks none too large in the light of shipping performances. It is not a difficult matter to estimate the probable tonnage of ore upon the older ranges or in the Vermillion range of the Minnesota field. New districts are being looked for in our own country, as well as in Canada, the idea that there may be a shortage having grown considerably of late.

Developments continue on all iron ranges, says a Duluth dispatch. On the Marquette, the old Titan mine, abandoned since 1888, will be re-opened by the Cleveland Cliffs Company. At Cambria and Lillie, now belonging to the Republic Iron & Steel Company, much work in the way of repairs to shafts has been completed. The Lake Angeline Company is mining at old Mitchell, and will take out what ore is left in the mine. F. Braasted is exploring near the Fitch. Joseph Sellwood will re-open the Rolling Mill mine, near Negaunee. West Republic is hoisting ore again. Foxdale and Bessie, at Champion, are increasing their forces. Three drills are to be placed at Dexter. An examination has been made recently of Atlantic mine, Gogebic range, with a view to purchase at \$1,000,000. Old Jackpot, idle many years, is being developed with the idea that the main body lies deeper than workings have gone. The American Steel & Wire Company is examining Hope mine, Crystal Falls, with the idea of buying, and is looking at adjoining property, where indications are magnificent. At Stambaugh the Menominee Exploring Company has opened into good lenses of new ore at the Sheridan, and the Fogerty, Murphy and Kinney shafts are all looking well. At Commonwealth, the Commonwealth Iron Company has found a good new mine, located in the company's old oat field, 1,000 feet from the Badger mine. The Commonwealth mine is about cleaned out. A large find has been made, it is reported, on Oliver Company's exploration near Florence, under lease from several Wisconsin men.

That the Mesaba range will add to its lead of the past year during the coming shipping season there is no question. There will be half a dozen mines opened on the range during the year. Among these is the Stevens, a property belonging to the Oliver Iron Mining Company. Stevens has an immense ore body under a low royalty and a reasonable annual minimum, and there is so little surface covering of earth that it can probably be mined open pit. It is the most easterly deposit of importance known on the range. Elba mine, lying on the line between ranges 16 and 17, was opened a year ago, but has produced no ore on account of water. It will mine 100,000 tons the present year, probably. It is an underground mine of high class, and the property of the Minnesota Iron Co. Just west of it the Malta mine, closely affiliated with Minnesota Iron, will be a shipper of importance. Five miles west of it is Spruce mine, under lease to P. L. Kimberly, where at least 100,000 tons will be mined this year. It is a large deposit of a fine Bessemer. In connection with this old Cloquet, virtually a new mine, will be operated extensively. Both are underground and a shaft has been sunk at Spruce the past few weeks far down into the ore. Fifteen miles further west the American Mining Co. has a lease of the Clark mine, from which it intends to ship 100,000 tons this year. The work of development is under way, with some old Chandler mining captains in charge. This is also a large body. The mine is three miles east of Hibbing. Three miles west of that place lies a very large body of ore under a light surface, explored some years ago by pits and drills and discovered to have at least 8,000,000 tons of high grade ore, which is to be opened by Corrigan McKinney & Co.

Old properties are to be extended and developed. Not a mine on the range with the exception of Canton, but can add to its output of 1899. Beginning at the east end, Hale and Kanawha are being stripped and developed and will increase their output fourfold; Williams has been shown to have ten times the ore that was supposed to exist there; Biwabik has since the close of the shipping season been so changed

that double the mining of any past year can be done at less expense than any past season's output cost, the stripped area at Sparta is enlarged; Ohio is more of a mine than ever, with additional stripping going on all the time; Oliver is being prepared for heavy work; Auburn is to have a second stripping pit for milling operations, giving it nearly double the old capacity; Adams will have five shafts instead of three, but will have no surface pits as in the past; Fayal has started out for an output of 1,250,000 tons and can make it if there is no hindrance; the Lake Superior Consolidated Hibbing group will increase heavily and Mahoning is expected to add 20 per cent. to its work of the past year; Penobscot will also increase.

THE NAVIES OF THE WORLD.

The annual returns, computed by request of the British parliament, shows the number of war vessels of all classes which, in the navies of Great Britain, France, Russia, Germany, Italy, United States and Japan, were either built or building on Oct. 15, including in the last category all those vessels for which on that date money had been appropriated by the respective governments, although the construction of the vessels might not have actually begun. The figures are as follows:

	Battle-ships.	Arm'd. cruisers.	Tor. boats
England.....	70	31	240
France.....	35	20	293
Russia.....	24	12	233
Germany.....	25	6	126
Italy.....	19	7	180
United States.....	16	5	50
Japan.....	7	7	71

England has more battleships and cruisers than France and Russia combined and more than Germany, Italy, United States and Japan combined. In torpedo boats she is inferior to France and but little superior to Russia.

NOTES.

R. O. & A. B. Mackay, Hamilton Ont., are having built two Welland Canal sized steamers at Dundee, Scotland. This addition to the Canadian lake fleet is being constructed under the rules of and to class by the British Corporation for the Registry and Survey of Shipping. Mr. Robert Logan, Naval Architect and Consulting Engineer, Cleveland, represents the British Corporation Registry on the Great Lakes.

ARRANGEMENTS have been made by the government of the province of Ontario, Canada, to survey a large area of land lying between the forty-seventh parallel and Hudson Bay. The intention is to thoroughly and completely survey an area of about 140,000 sq. miles, which as yet has been but little explored, but is known to contain large areas of good timber, with indications of valuable mineral deposits. This action is surmised to be the precursor of a Hudson Bay railway scheme.

THE Chicago drainage canal, which has been seven years in process of construction, at a cost of more than \$33,000,000, was opened January 2. It is 28 miles long, and it is designed to improve the water-supply of Chicago by turning water from the lake through the odorous Chicago river, thence into the Des Plaines river, from which it will flow on through the Illinois and Mississippi rivers into the Gulf of Mexico. The canal has a minimum depth of 22 feet and is built to carry 300,000 cubic feet a minute. Apprehensions are felt in some quarters as to the effect which the diversion of so large a volume of water from Lake Michigan may have upon the lake levels, and also as to the effect of the drainage upon the health of towns on the route.

THE tonnage of vessels entered at ports in the United Kingdom from foreign countries and British possessions, with cargoes, during December, 1899, amounted to 2,808,135 tons, and the tonnage cleared in the foreign trade to 3,286,120 tons, as against 3,024,175 tons entered and 3,470,180 cleared in December, 1898. For the twelve months ended December, 1899, the figures were 36,224,248 tons entered and 43,031,081 tons cleared, as compared with 34,515,804 tons entered and 39,462,642 tons cleared in 1898. With regard to the coasting trade, the tonnage entered during December, 1899, with cargoes, amounted to 2,443,062 tons, and the tonnage cleared to 2,411,012 tons, as against 2,603,330 tons entered and 2,572,410 tons cleared in December, 1898. For the year 1899 the figures were as follows: Entered 31,004,547 tons, and cleared 30,608,392 tons. These figures compared with 30,914,274 tons entered and 30,504,091 tons cleared in 1898.—The Shipping World, London.

TRAFFIC THROUGH THE ST. MARY'S FALLS CANAL.

COST OF CARRYING FREIGHT TRANSPORTED THROUGH ST. MARY'S FALLS CANAL, MICHIGAN, AND SAULT STE. MARIE CANAL, ONTARIO, FOR THE SEASON OF 1899.

ITEMS.	Quantity.	Price per Unit.	Amount.
Coal.....net tons	3,940,887	\$.46	\$1,812,808.02
Flour.....barrels	7,114,147	.13	924,839.11
Wheat.....bushels	58,397,335	.036	2,102,304.06
Grain (other than wheat).....bushels	30,000,935	.06	1,800,031.66
Manufactured Iron.....net tons	191,110	1.70	324,887.00
Pig Iron.....net tons	23,475	1.50	35,212.50
Salt.....barrels	316,336	.15	47,450.40
Copper.....net tons	120,090	2.00	240,180.00
Iron ore.....net tons	15,328,240	.70	10,729,768.00
Lumber.....M. Ft. B. M.	1,038,057	3.00	3,114,171.00
Silver Ore.....net tons	487	2.50	1,217.50
Building Stone.....net tons	39,063	2.00	78,126.00
General Merchandise.....net tons	587,484	2.50	1,468,710.00
Total cost.....			\$21,959,707.25

COMPARATIVE STATEMENT OF FREIGHT RATES TO AND FROM LAKE SUPERIOR FOR THE SEASONS OF 1898 AND 1899.

ITEMS.	Average Cost per Unit.	
	1898	1899
Coal.....net tons	\$0.25	\$0.46
Flour.....barrels	.10	.13
Wheat.....bushels	.02	.036
Grain (other than wheat).....bushels	.02	.036
Manufactured Iron.....net tons	1.40	1.70
Pig Iron.....net tons	1.05	1.50
Salt.....barrels	.15	.15
Copper.....net tons	2.00	2.00
Iron Ore.....net tons	.60	.70
Lumber.....M. Ft. B. M.	1.65	3.00
Silver Ore.....net tons	.....	2.50
Building Stone.....net tons	1.50	2.00
General Merchandise.....net tons	2.40	2.50
Total cost of transportation.....	\$ 4,125,896.00	\$21,959,707.25

TABLE SHOWING TOTAL FREIGHT, ITS VALUATION, COST OF TRANSPORTATION, AVERAGE LENGTH OF TRIPS AND RATE PER TON PER MILE FOR SEASONS INDICATED.

Year.	Total Freight Net tons.	Valuation of Freight.	Total cost of Transportation.	Average Distance Frt. was Carried.	Cost of Trans. per mile-ton.
				Miles.	Mills.
1887.....	5,494,619	\$79,031,757	\$10,975,153.13	811.4	2.3
1888.....	6,411,423	82,156,019	7,883,077.40	806.4	1.5
1889.....	7,516,022	83,732,527	8,634,246.63	790.4	1.5
1890.....	9,041,213	102,214,948	9,472,214.90	797.2	1.3
1891.....	8,888,759	128,178,208	9,849,022.81	820.4	1.35
1892.....	11,214,333	135,117,267	12,072,850.88	822.4	1.31
1893.....	10,796,572	145,430,957	9,957,483.11	831.9	1.1
1894.....	13,195,860	143,114,502	10,798,310.28	821.1	.99
1895.....	15,062,580	149,575,129	14,288,758.02	830.	1.14
1896.....	16,239,061	195,146,842	13,511,015.80	836.4	.99
1897.....	18,982,755	218,235,927	13,220,099.84	844.3	.83
1898.....	21,234,664	233,069,740	14,125,896.00	842.6	.79
1899.....	25,255,810	281,364,750	21,959,707.25	827.2	1.05

CLASSIFICATION OF AMERICAN AND CANADIAN VESSELS, SHOWING TONNAGE AND PASSENGERS CARRIED BY EACH OF THEM THROUGH CANALS AT SAULT STE. MARIE, MICHIGAN, AND ONTARIO, DURING THE SEASON OF 1899.

AMERICAN VESSELS.					
Class.	No.	Valuation.	Registered Tonnage.	Freight Tonnage.	Passengers.
Steamers.....	489	\$53,369,485	568,438	17,142,490	22,586
Sails.....	270	11,631,035	2,4915	7,294,893	.....
Unregistered.....	.....	.....	.....	29,659	.....
Total.....	759	\$65,000,520	823,353	24,467,042	.....

CANADIAN VESSELS.					
Class.	No.	Valuation.	Registered Tonnage.	Freight Tonnage.	Passengers.
Steamers.....	53	\$3,041,220	26,093	658,723	26,496
Sails.....	20	328,380	9,882	128,418	.....
Unregistered.....	.....	.....	.....	1,627	.....
Total.....	73	\$3,369,600	35,975	788,768	.....

TABLE SHOWING FREIGHT TONNAGE FOR EACH CALENDAR MONTH DURING SEASON OF 1899.

Month.	East bound Net tons.	West bound Net tons.	Total Frt. Net tons.
April.....	.....	.....	.....
May.....	2,365,806	542,262	2,908,068
June.....	2,916,015	585,003	3,501,018
July.....	3,265,786	759,003	4,024,789
August.....	3,184,427	800,175	3,984,602
September.....	2,729,952	535,724	3,265,676
October.....	3,095,644	664,957	3,760,601
November.....	2,576,421	615,378	3,191,799
December.....	485,483	133,774	619,257
Total.....	20,619,534	4,636,276	25,255,810

THE steamer Guernsey cleared from Victoria, B. C. last week with the largest lumber cargo ever taken from Puget Sound. She has three million feet on board, from the Hastings and Moodyville mills for Shanghai and Vladivostok. The largest lumber cargo ever carried before was a little over two million feet.

THE TOLEDO STRAIGHT CHANNEL.

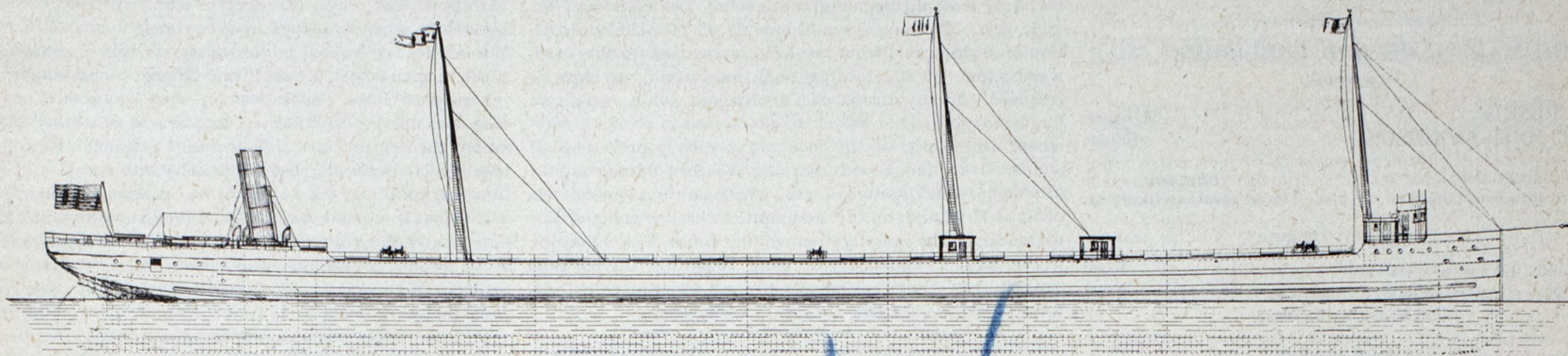
The contractors will begin work about the first of May on the straight channel, at Toledo, O. The contract is to be completed within forty working months from May, 1900. They are allowed to work seven months of each year. Two dredges are ready to begin operations in the spring, and two more are expected to work on the channel. Forty working

OFFICERS APPOINTED FOR THE SEASON OF 1900.

Official list as submitted to the RECORD by owners and managers.

UNION STEAMBOAT CO., (Erie Railroad Co.) Buffalo, N. Y.—Str. Starrucca, Capt. Walter Robinson; Eng. Alex. Brown. Ramapo, Capt. J. H. McDonald; Eng. H. C. Jordan. Chemung, Capt. F. B. Huyck; Eng. George Fritsche.

presenting Valentine Fries, Milan, O.—Str. Wm. Edwards, Capt. Jas. Laframboise; Eng. Moses Blondin. Schr. Golden Age, Capt. D. H. Stalker. W. C. RICHARDSON, Cleveland, O.—Str. J. H. Wade, Capt. Richard Call; Eng. George McMonagle. J. H. Devereaux, Capt. John H. Babbitt; Eng. Thomas Shannon. Iroquois, Capt. E. J. Burke; Eng. Lawrence J. Regan. J. T. Outhwaite, Capt. Chas. R. Cleveland;



PROFILE VIEW OF THE STEEL CARGO STEAMER JAMES J. HILL, CAPT. FRED P. HOUGHTON.

Built at the Lorain, O., yards of the American Ship Building Co. to the order of the American Steamship Co. General hull dimensions, 497 feet over all; 478 feet keel, 52 feet beam and 30 feet molded depth. Estimated carrying capacity about 8,000 tons on a draft of 18 feet.

months will include six seasons. The work may be completed in less time if the contractors determine to do so. It is not, says the assistant engineer, likely that they will consume the entire time specified by the government.

The contract covers everything outside of the Wheeling bridge, the channel to be 400 feet wide and 21 feet deep on mean level. The estimated quantities of material to be removed are: In Maumee bay, 1,600,000 cubic yards; middle division from the cribs inward to the old White range, 1,484,000 cubic yards; inner division from the old White range to the mouth of the river, 1,884,000 cubic yards. River dimensions—from mouth of the river up to the Wheeling bridge, 26,000 cubic yards, making a total of 5,288,000 cubic yards under the contract. The total length of the work is 54,000 feet, or upwards of ten miles.

The cost of the entire work will be about \$500,000. The dredge Maumee will get about \$100,000 outside the half million dollars. The amount made available under the continuing contract system was \$800,000, to be appropriated from time to time. While the amount now actually available for contract work is but \$45,000, it is expected that a liberal amount will be appropriated in the sundry civil bill during the present session of Congress.

Owego, Capt. John Byrne; Eng. H. Hill. Tioga, Capt. John Wulke; Eng. Albert Simpson. H. J. Jewett, Capt. John Dugan; Eng. Chas. Coushaine. Rochester, Capt. Geo. T. Morris; Eng. Nelson Johnson. New York, Capt. P. O'Neill; Eng. John Caul.

Eng. R. A. Davidson. Schr. H. A. Barr, Capt. John Eberlein.

ARNOLD TRANSPORTATION CO., Mackinac Island, Geo. T. Arnold, Gen'l. Mgr.—Str. Ossifrage, Capt. David Tallion, Eng. M. Madden. Elva, Capt. Chas. Mosher; Eng. Elliott.

New steamer building, Capt. J. B. Mondor; Eng. P. Eustice. ARNOLD LINE STEAMERS, Geo. T. Arnold, Mgr.—Str. Islander, Capt. Wm. McCarty; Eng. ——— Lorain, L., Capt. ———; Eng. ———.

MITCHELL & ROWLAND, Toledo, O.—Str. Sachem, Capt. Thos. Ledden. Sch. City of Toledo, Capt. John Griffin. George Owen, Capt. Moore.

J. J. BOLAND, Buffalo.—Str. Garden City, Capt. D. O'Hagen; Eng. ———. Schr. Westford, Capt. J. O'Hagen. Manitowoc, Capt. Hugh O'Hagen. Monitor, Capt. Alex. McLean. Atmosphere, Capt. M. Lynch. J. C. King, Capt. Alfred Nerburn.

THOMAS MUNROE, Muskegon, Mich.—Str. George C. Markham, Capt. Anton Christensen; Eng. Albert Green. Schr. Lyman Minerva, Capt. Hans

M. Davis, Capt. Dehard Nelson. Hermanson.

JOHN J. WARDE, 409 Oake St., Chicago.—Str. Niko, Capt. Thos. Biggs; Eng. Luke Mannion. Schr. Annie M. Peterson, Capt. Chas. Bough.

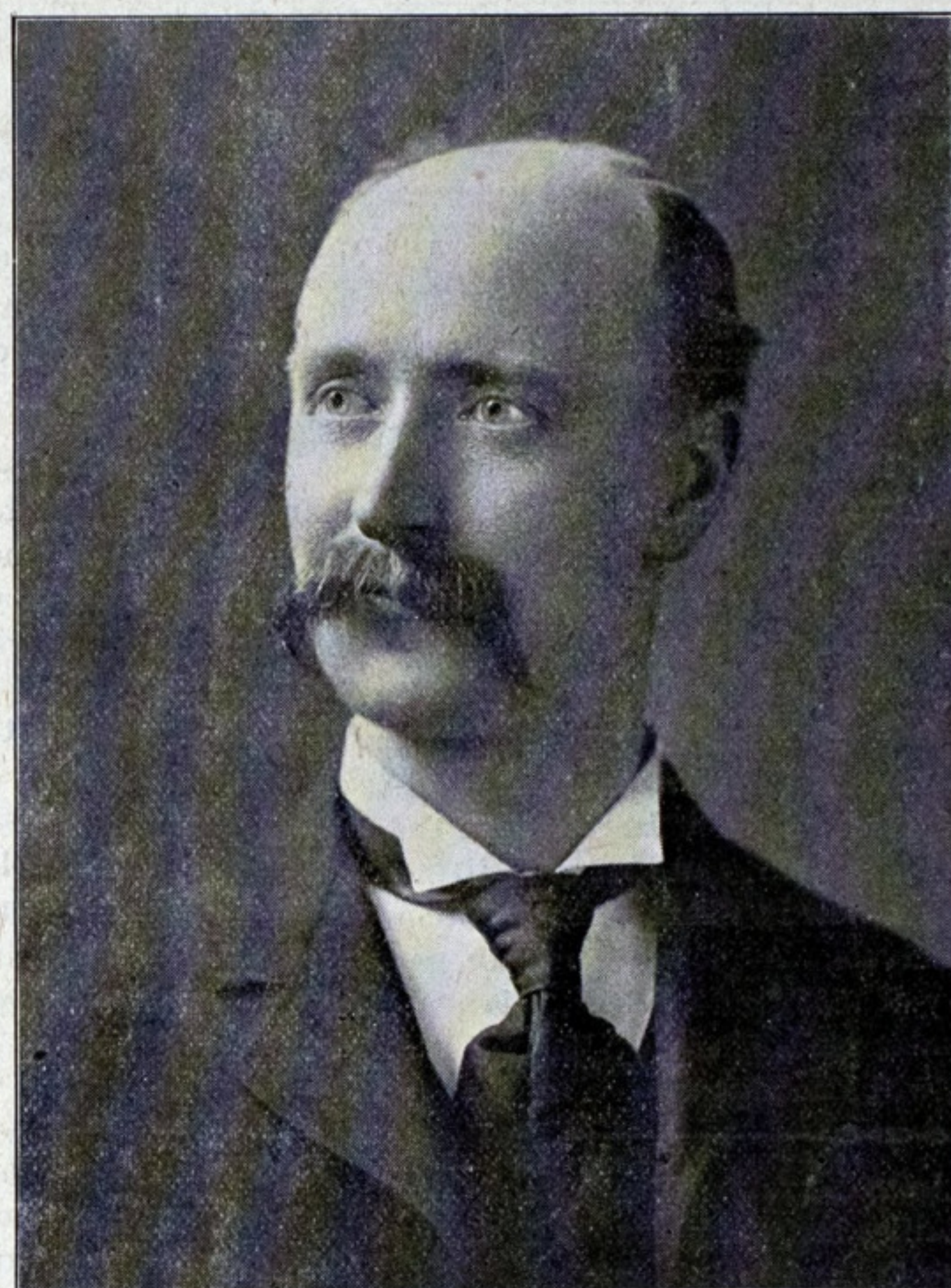
HOPE TRANSPORTATION CO., Detroit, Mich.—Str. W. R. Stafford, Capt. B. Chamberlain; Eng. Julius Holden. Schr. Ed. McWilliams, Capt. George Johnson. Schr. John A. Francomb, Capt. John Mason.

THE JACKSON TRANSIT CO., Cleveland, W. C. Richard-



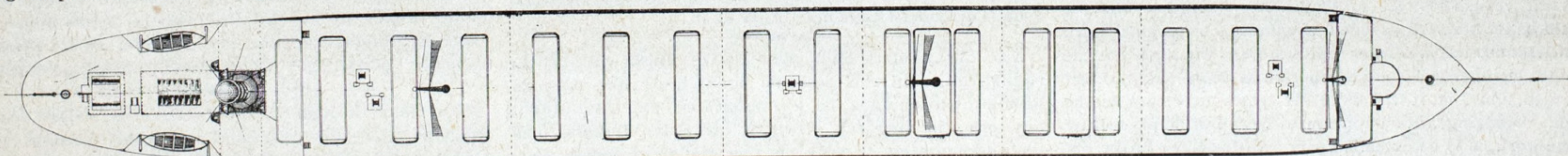
JAMES C. WALLACE.

General Manager American Ship Building Co.



ROBERT LOGAN, N. A. C. E.

Supt. of Construction for this fleet of 500 foot boats.



A GENERAL OUTLINE AND DECK PLAN OF THE STEAMER JAMES J. HILL.

To be launched from the Lorain yards of the American Ship Building Co. on Saturday afternoon, February 24. For complete and detailed description see Vol. 23, No. 4, THE MARINE RECORD.

The dredge Maumee will not begin work much before May 1, on account of delay in obtaining material for repairs on the fleet. It was necessary to almost entirely rebuild several of the oldest scows, and a large force of men will be kept at work so as to make the fleet available as soon as possible.

son, Manager.—Str. Samuel Mitchell, Capt. Thomas Wilford; Eng. James Falconer. Schr. Chickamauga, Capt. Harry W. Phillips. THE RICHARDSON TRANSPORTATION CO., W. C. Richardson, Manager.—Str. Roumania, Capt. Lewis W. Stone; Eng. Martin Burns. Schr. John T. Barlum, Capt. John McKeigham. W. C. RICHARDSON, re-

OLGA TRANS. CO., E. G. Riesterer, Mgr., Tonawanda, N. Y.—Str. John C. Pringle, Capt. A. P. Gallino; Eng. J. N. Burns. Barge Sweetheart, Capt. Chas. F. Kellar. Benj. Harrison, Capt. Charles C. Hanly. Unadilla, Capt. Philip Hepner.

(CONTINUED ON PAGE 11.)



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CLEVELAND, O., FEBRUARY 22, 1900.

THE members of the Liverpool Steamship Owners' Association own 2,221,842 gross tons of steam shipping, or 20 per cent. of the total British steam tonnage afloat. The entire lake tonnage amounts to 1,446,348 tons, or 775,494 tons less than that owned by the Liverpool Owners Association. The tonnage entering and clearing from the Mersy (Liverpool river) last year is placed at twenty-six million tons.

At a recent meeting of the New York Chamber of Commerce the president of the International Navigation Company stated that the trans-Atlantic steamers St. Paul, St. Louis, Paris and New York were running at a loss. Owing to increased working expenses, higher wages, heavy coal bills, small number of passengers and short cargoes, there had been in recent years an annual loss of over \$400,000.

THE present month will have no new moon. This peculiar incidence is due to the fact that the last year of the century is not reckoned as a leap year, and that even in ordinary leap years the moon is new in February as in other months, except at long intervals. A moonless month has not occurred since February of 1866, and will not, it is said, occur again for a vastly greater space of time. January had two new moons and March will also have two.

THE report emanating from a "fake story" source and published in several lake dailies last week, to the effect that the American Ship Building Co. is figuring on considerable more new tonnage for early delivery, is entirely without foundation. The yards of the company, as also the other lake shipyards, are at present as busy as possible on new work and their construction capacity is only limited to the amount of material which they are able to secure from the mills and furnaces. The same is true in other lake marine industries, such as boiler works, etc., where manufactured iron and steel is in demand.

WITH vessels 500 feet in length now being put afloat, it would be in order for dredged channels to be given a width of at least 600 feet wherever practicable. We note that the straight channel at Toledo is reported as being only 400 feet in width, and that it will take six years to complete the work. Dredging, which appears to be the principal feature of the work, is to be extended over a drift of ten miles, but surely, this job could be accomplished in less time than six years, especially as there seems to be a fair bottom for common, ordinary, dredging operations over the ten mile reach of the straight channel at Toledo. Such a width of channel might be found ample for all purposes, would, no doubt, accommodate the traffic of to-day, but how about six years hence?

MILLIONS of dollars are being expended on harbor, channel and canal improvements, but the only big project under active discussion for maintaining levels is in the Corliss bill now before Congress, and meeting vigorous objection from the people of the Niagara frontier. The two leading objections to the building of the Corliss dam, are that it would block navigation on the Niagara river, and that there is no certainty it would regulate the level of Lake Erie and Detroit river. If the bill would provide also for the construction of a ship canal from the head of the river to the Tonawandas, one of the leading objections would, perhaps, be removed. In any case, a dam at Niagara would not give a large enough head of water to affect Detroit river nor anywhere near there in the face of a westerly prevalence of winds. It is understood that the Weather Bureau is now looking into the question of wind effects on the surface levels of Lake Erie, and, on the assumption that "it is better late than never," the investigation will, no doubt, be an addition to the meager knowledge at hand regarding the physical geography of these vast sheets of fresh water and the territory contiguous thereto.

ACCORDING to a ruling of Terrence V. Powderly, Commissioner-General of Immigration, that department has never held that the crews of foreign vessels are subject to the immigration laws, but on the contrary, that an alien seaman was not subject to such inspection so long as he continued on the ship's articles. In this connection the Collector of Customs at Mobile, Ala., acted in an arbitrary manner in detaining a vessel on account of the desertion of a member of her crew. Mr. Powderly rather rakes over the rules of his department to show that the Customs Collector was all in the wrong, and this is where the Commissioner so greatly alters his tune from all that we have heard him sing hitherto. Immigration officers had better leave the sailing community alone, they are cosmopolites anyway, and a deep water sailor in New York would as soon ship for Havre as France, arriving there he might ship for Malta to purchase a lace necktie, and thence to Shanghai or Foo-Chow-Foo for a pair of straw slippers or a five dollar suit of blue flannel clothes. No, Mr. Powderly, don't trouble sailors; better call your immigration minions off whenever they get on the track of seamen.

JUST at the present time there is a feeling among the owners of small fleets, and especially those who own tonnage on the second letter, to worry through the coming season without insurance. There are no indemnity associations, clubs, nor even any office that covers such losses as dock and wharf damage, etc., therefore, to go without a full line policy is to be destitute of indemnification on each and every hand. Although premiums will no doubt be fully as high as last year, there will be the usual quota of insurance placed, besides which are some new big lines to handle this season that were not on the insurance market last year. The two 500-foot steel cargo boats put afloat within the past forty days are the pioneers of a fleet owned by the newly formed American Steamship Co.

THE owners of the Jesse Spalding ought surely claim some recompense from the city of Chicago for the use of their boat from last Friday to Saturday. The city hung her up at both ends and tried to make a jack-knife bridge out of her; besides, she was in use as a dam and raised the water five inches towards the mouth of the river. The Spalding being a new steel steamer, 220 feet in length, and built under special survey, may not show any material damage at the moment, but there are few boats, loaded as she was, that wouldn't show some signs of punishment. This idea of trying to bend a boat in the center, both transverse and longitudinally, so as to accommodate a length of 220 feet to a span of only 140 feet, is not exactly according to Gunter, whatever owners or underwriters may think of it.

AN EARLY start and work to the finish will be the ruling feature in this season's handling of lake tonnage, prompt dispatch must be the watchword and detention in any form, the bugbear. Owners, managers, brokers, masters and engineers, in fact every one, and every person, place or thing, actively connected with the lake marine, will need to be on the continual jump from the killing of the Ice King until he reign, again. So may the balance be found on the right side of the vesselowners' ledger next fall. It is this season, a case of key up, and it is safe to say that the iron ore drogers, as well as all who travel on them, will be everlastingly kept keyed up, until next winter ties them up.

CURRENT decisions of the Treasury Department are published each week. In the latest issue of decisions the Steamboat Inspection Service has had printed a batch of the old and partly obsolete rules containing the pains and penalties. In these U. S. Revised Statutes, and only glancing at three or four of them, we find liabilities ranging from a fifty dollar penalty to ten years confinement at hard labor. Sec. 4446, Rev. Stat., says, that every master, mate, engineer and pilot shall, when employed upon any vessel, place his certificate of license framed under glass, in some conspicuous place in such vessel, where it can be seen by passengers and others at all times. Such master, mate, engineer or pilot that does not do this is subject to a fine of one hundred dollars or the revocation of his license. Sec. 4448, Rev. Stat., commands all officers, under a penalty of revocation of their licenses, to assist the inspector in examining their boats and makes it mandatory that he, or they, should point out all defects and imperfections known to them in the hull, equipment, boilers, or machinery of such vessels. This is a good deal like ship-owners keeping spies in their employ to actively assist the government local inspectors in doing nothing. Sec. 5344, Rev. Stat., points out the judgment that a circuit court of the United States must render where an officer is found guilty of negligence or inattention involving loss of life, this is the ten year sentence, and the negligence is to be called manslaughter, for which any circuit court shall sentence the prisoner at the bar to ten years' confinement at hard labor; p'raps, if the word solitary had been included, it might read or sound better. These clauses and scores of others have now, (as they have for a dog's age) all the force of statute law, having received the august approval of the Secretary of the Treasury. Officers must therefore act and comport themselves accordingly or suffer the pains and penalties provided by law. Congressman Minor, of Wisconsin, a member of the House Committee on Merchant Marine and Fisheries, now fathers a bill to penalize merchant officers in a maximum fine of five hundred dollars or three years' imprisonment, for being found guilty of making an inexact statement to the infallible licensing board of local inspectors. This bill should be entitled "a measure to discourage men from seeking to secure a license as an officer in the United States Mercantile Marine," and furthermore, to prevent their attempts at being browbeat by arrogant and assumptive servants of the government. Please, Mr. Minor, drop pushing such a ridiculous and asinine measure. Get around it some other way.

THERE IS quite a danger of Chicago being pronounced an unsafe port to trade to on account of the current prevailing in the river. Masters of boats, as well as the men in charge of Chicago tugs, are not accustomed to kicking ahead or astern and backing and filling between bridges with the action of a two, three or four mile current to contend with or against. At the very least, it is possible that, as Capt. Keith pointed out a few weeks ago, higher freights will be asked for Chicago cargoes, if only as a compensation for the extra risks involved in the hazardous river traffic. Chicago will now be approached with terror, and left with thankfulness, besides, many a good man's head will go off through incurring damage bills, etc., while navigating and piloting his craft through and around the creek.

THE co-operation of the Federal Government is to be asked to convert the Chicago drainage canal into a waterway for commercial and naval purposes. It is proposed to make it possible for all vessels drawing not over sixteen feet to pass from the Lakes to the Gulf. This list will include all United States gunboats and many of the second-class cruisers. It is estimated this channel will cost the General Government \$25,000,000. Pressure will be brought to bear on the present Congress to sanction the plan and appropriate part of the money so that the work may be begun at once. St. Louis bacteriologists report that the waters of the Mississippi have been dangerously contaminated by Chicago sewage.

THE traffic through St. Mary's Falls canal last year aggregated 25,255,810 tons, and the vessel passages 20,055. Of this volume 88 per cent. used the United States canals and 12 per cent. locked through the Canadian canal. In the passenger traffic, 22,586 used the American side, and 26,496 the Canadian canal. The greatest monthly tonnage was carried in July, when, according to the records of the officials at the locks, the total freight in net tons amounted to 4,024,789. In 1889 the traffic through the St. Mary's Falls canal, with only one lock at that time, was 7,516,022 tons.

UNDER date of the 14th inst., a correspondent writes us: "A northwest wind, increasing to a gale, cleared the North Passage, from St. Ignace to Mackinaw City of all ice yesterday, driving it out of sight down Lake Huron. Ice had formed from 14 to 16 inches thick, teams having crossed to the main shores from Mackinac Island. The railroad transfer car ferry St. Ignace is running in clear water. The small steamer *Lorraine L.* was put in service again today between Mackinac Island and St. Ignace carrying mails and passengers. The ice looks as if had not moved from McGulpin's Point in the upper end of the Straits."

THE following representatives of the Lake Carriers' Association attended the River and Harbor Committee session on Lake Levels held at Washington last week: W. C. Farrington, president; C. H. Keep, secretary; Edward Smith, Buffalo; Capt. A. B. Wolvin, Duluth; Capt. David Vance, Milwaukee; W. C. Fitzgerald, Milwaukee; Capt. D. Sullivan, Chicago; L. C. Waldo, Detroit; James Corrigan, Cleveland; H. Coulby, Cleveland; Harvey D. Goulder, Esq., counsel.

A REPORT from the Deep Water Ways Commission was placed in the hands of the public printer to print on December 16. On February 15 it was required at the hearing of the Committee on Rivers and Harbors relative to the maintenance of Lake Levels, but the public printer hadn't printed it. This circumstance made Congressman Corliss duly indignant, as well it might. However, he should wait for departmental annual reports, and then he would know how the public printer usually prints.

THE Secretary of the Navy has sent to the Senate a statement of the number of vessels under construction and of naval officers available. The statement was made in response to a resolution of inquiry. It shows that there are 61 vessels of all classes now building, and that with these vessels in commission, they, together with those now in use, would require 3,000 officers, whereas there are now only 1,084 officers. There are 14,000 men in the navy.

OFFICERS APPOINTED FOR 1900.

(CONTINUED FROM PAGE 9.)

HARVEY H. BROWN, Cleveland.—Str. Castalia, Capt. C. C. Allen; Eng. Edward Dempsey.

TOM ADAMS, Detroit.—Str. Tom Adams, Capt. Duncan Nicholson; Eng. James Kelley.

J. B. MILLER, Toronto, Can.—Str. Seguin, Capt. J. B. Symes; Eng. D. L. Foley.

WM. WOLLATT Mgr., Conneaut, O.—Str. Shenango No. 1, Capt. R. B. McLeod; Eng. E. Wood; First Mate, A. D. Reid.

THOMAS CURRIE, Port Huron.—Str. City of New York, Capt. Thomas Currie; Eng. James Dillen. Wm. Grandy, Capt. Robert Smith. Geo. H. Waud, Capt. Thos. Gill, A. E. Keating, Capt. H. Seffler.

MILWAUKEE TUG BOAT LINE, Wm. H. Meyer, Managing owner, Milwaukee.—Str. Helena, Capt. W. E. Wright; Eng. Scott Pratt. Neosho, Capt. O. J. Soleau; Eng. John McCaffrey.

LAKE ERIE TRANSPORTATION CO., Toledo, O.—Str. S. C. Reynolds, Capt. I. C. Herrick; Eng. James Miller. George J. Gould, Capt. Walter M. Cottrell; Eng. George A. Butler Russell Sage, Capt. George Burnham; Eng. Joseph Kohlbrenner. John C. Gault, Capt. Charles H. Leutes; Eng. John C. Busted.

BARRY LINE, Chicago.—Str. City of Fremont, Capt. Edward Evans; Eng. Chas. Grobben. F. & P. M. No. 1, Capt. F. Pitman; Eng. J. Hitchcock. Gordon Campbell, Capt. L. Larson; Eng. Chris. Smith. City of Grand Rapids, Capt. Thomas Barry; Eng. Geo. Carr. State of Michigan, Capt. Eng. Frank Barney. Robert E. Burke, Capt. Peter Barry; Eng. John Miner. Alpha, Capt. Joseph Lamoreaux; Eng. John Miller. Barge, Sophia Minch, Capt. G. Richards.

MUTUAL TRANSPORTATION CO., Capt. Geo. P. McKay, Mgr., Cleveland.—Str. Coralia, Capt. Wm. Cumming; Eng. Chas. J. Love. Corona, Capt. S. Murphy; Eng. Grant Donaldson. Corsica, Capt. A. J. Greenley; Eng. O. H. Gillmore. Cambria, Capt. J. Laframboise; Eng. E. H. Learned. MENOMINEE TRANSIT CO., Cleveland, Geo. P. McKay, Mgr.—Str. Grecian, Capt. P. L. Millen; Eng. Thos. Kelley. Roman, Capt. Richard Jollie; Eng. Samuel Wells. Saxon, Capt. Martin Johnson; Eng. Geo. E. Averill. Briton, Capt. J. B. Watts; Eng. A. J. Haig. German, Capt. Emil Detlefs; Eng. Fred. Warning.

WEATHER BUREAU ICE REPORT FOR THE LAKES.

Duluth, Minn., February 19.—Harbor ice ranges 6 to nearly 34 inches; ice in lake extends beyond Two Harbors and averages 8½ inches near Duluth, but at Two Harbors is thin and would break up with a fresh wind.

Detroit, Mich., February 20.—Lake Superior harbors are solid and floating fields greatly increased. The river and lakes below Sault Ste. Marie are solid. Lake Michigan harbors are blocked, except Chicago to Milwaukee and Grand Haven and Ludington, the last three being forced open; field over entire lake greatly increased. In the Straits of Mackinac ice is 14 inches thick, but mail boat is running. In Lake Huron there is pack ice around islands off Alpena, and ice fields have decidedly increased. The St. Clair and Detroit rivers are partially open. In Lake Erie ice fields are moving over west half, with solid ice over east end. Lake Ontario harbors are solid and outside fields greatly increased.

CONCRETE BUILT WHARVES.

The Illinois Steel Co. has recently built at its South Chicago works, a great concrete wharf or dock wall for the steamers which bring iron ore for the furnaces. Along this wharf are twelve of Brown's hoisting and conveying plants for rapidly unloading the vessels and delivering the ore on the great stock piles immediately behind the wharf. The foundations consist of three rows of 35 ft. piles, 7 ft. apart, with piles 2½ ft. centers, and capped with timbers 12 in. by 12 in., while waling pieces run along the front and back rows. As batter piles in compression could not be used, there are 35 ft. batter piles in tension, 6 ft. apart, and bolted to the cap timbers. They have a very firm hold in stiff clay. The space around and behind the piles is filled with slag. Upon this foundation is the concrete wall, 1,600 ft. long, 18 ft. wide at the base, 8 ft. wide on top, and 10 ft. 6 in. high. The concrete for the bottom 18 in. in thickness, is composed of one part slag cement, four parts sand, and eight parts blast furnace slag. The facing portion, for a thickness of 12 in., is of the same materials, but with only four parts slag. The body of the wall is composed of one part natural cement, three parts sand and five parts slag. The top is finished with a cement pavement finish 4 in. thick. The wall was built in blocks 25 ft. long, with a V shaped vertical recess in one end, and a similar projection on the other end, so as to dovetail the blocks together. The forms or molds were of 3 in. plank laid vertically, and the horizontal and diagonal anchor rods for the mooring posts were set in position, and bolted to the foundation cap timbers before the concrete was laid. In cold weather the water of the concrete was warmed to about 100 deg. Fah., and no concrete was laid when the temperature was less than 20 deg. above zero. The face of the wall is protected by loose piles, held by anchor bolts, and carrying two lines of timber walls.

SHEATHING BATTLESHIPS.

The question of sheathing the new battleships is yet to be settled and much correspondence on the subject is being received by officers of the Navy Department. Admiral Highborn, Chief of the Bureau of Construction and Repair, who has placed himself on record as favoring the sheathing of the vessels, has received the following interesting letter on the subject from Capt. J. B. Estes, of Charlotte, N. Y., in which he says: "Thirty years ago I recommended to the company of the Royal Mail line of steamers (iron) to sheath the bottoms of their steamers just above the bilge. They did not heed my advice, but in ten years after I proposed the above they sunk in the rapids of the St. Lawrence fifteen of their steamers. The expense of raising these steamers averaged about \$80,000. At last two of the directors called on me and asked what could be done. I at once replied, sheath with four inch rock elm. One was of the opinion that they would draw more water. On the contrary they drew on an average two inches less. Since they adopted the sheathing not one boat has been sunk. My argument is the iron for a backer, the wood for a fender."

THE Hamburg-American line are about to introduce a new kind of fuel on their new freight steamers. It consists of a semi-fluid petroleum which is imported from Borneo in large quantities. It is not liable to become ignited spontaneously at high temperature. It is expected that the new fuel will permit a reduction of the number of firemen and also a considerable economy of space.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Passengers Engaged in Quarrel.—Where two passengers engaged in a quarrel on defendant's boats, and one, shooting at the other, injured a third passenger, evidence that it was difficult to tell how soon the captain responded when apprised of the difficulty, but that witness did not believe the affair would have happened if the captain had promptly responded, and that if the captain, who was present when the quarrel began, had paid proper attention, it would not have occurred, was properly stricken out as conclusions. *Tall vs. Baltimore Steam Packet Co.*, 44 At. Rep. (Md.) 1007.

Steamer Proceeding in Fog—Failure of Anchored Vessel to Sound Bell.—A steamer with a large passenger list, nearing the end of her trip, is justified in proceeding along a river to her own wharf before anchoring, notwithstanding a dense fog, provided she uses all the precautions possible under the circumstances, and she is entitled to recover damages caused by a collision with a vessel at anchor in the stream, while so proceeding, through the fault of such vessel in failing to sound her bell. *La Bourgogne*, 30 C. C. A. 203, 86 Fed. Rep. 475, followed. *The Benjamin A. Van Brunt*, 98 Fed. Rep. (U. S.) 131.

Seamen—Insufficient Provisions—Right to Leave Ship.—Seamen who, during the time they served on a voyage, were supplied with less food, on an average, than was called for by the shipping articles, and during a part of the time considerably less and insufficient for their comfortable maintenance, and who, on making complaint to the captain of being starved, were threatened to be starved worse before the end of the voyage, were justified in leaving the ship before the completion of the voyage for which they signed, and entitled to recover full wages for the time served. *The Forteviot*, 98 Fed. Rep. (U. S.) 440.

Negligence—Shipping.—In mooring defendant's steamer, the mooring line caught on and displaced a timber on plaintiff's dock, causing a hoisting machine to fall. Action was brought to recover damages for the injury done the machine. There was evidence that, when the line had been fastened to a pile on the dock, the captain of the steamer gave the signal to go ahead, after having asked a man on the dock to throw the line over the timber. The line failed to clear the timber, and the headway on the steamer caused the support to be pulled out before the line could be thrown off. Held, that the question of negligence on the part of the captain of the steamer was for the jury. *Pittsburgh & C. Dock Co. vs. Detroit Transp. Co.*, 81 N. W. Rep. (Mich.) 269.

Collision—Action in Extremis.—Where the testimony of the captain of a schooner which was sailing closehauled, and which was shown to have been properly manned, and to have kept a proper lookout, was to the effect that on approaching within an eighth of a mile of a tug, which, with tows, was crossing his course, his judgment was that, if he continued on his course, his vessel would come in collision with the tug, and the court was unable to say that, if the schooner had continued on her course, a collision would not have resulted, and the initial fault was that of the tug, the schooner will not be held in fault because, under the circumstances, she attempted to tack, and through no fault in her navigation, came into collision with one of the tows. *The Samuel Dillaway*, 98 Fed. Rep. (U. S.) 138.

Facts Considered—Rescue of Ships From Burning Wharf.—Two large steamships were lying side by side in a slip 150 ft. wide, near the shore end, fastened together, while one was made fast to a pier, when, during the night, while neither had steam up, a fire broke out on the wharf, which burned rapidly, destroying the pier to which they were made fast together with the shipping between that and the adjoining pier; only one vessel which had steam up being able to save herself. The ships cut loose from the pier, but were unable to work themselves out of the slip. The pier on fire was 800 feet long, and the one opposite 650 feet. The ship nearest the burning pier had already taken fire when libelants with their tug came voluntarily to their assistance, entered the slip and succeeded in towing both to a place of safety, neither having sustained more than slight injury. The ships, with their cargoes, were of the value of about \$240,000, and the tug was of the value of \$12,000. The time consumed in the service was 15 to 20 minutes. There was no other assistance at hand. Held, that taking into account the extreme peril of the ships, and their almost certain loss, as shown by the evidence of disinterested witnesses, but for the timely, prompt, and energetic assistance rendered by the tug, libelants were entitled to salvage to the amount of 5 per cent. on the value of the ship nearest the fire and her cargo and 3½ per cent. on the value of the other and her cargo. *The Boyne*, 98 Fed. Rep. (U. S.) 444.

Mr. Carnegie, speaking at a dinner given him at the Lotus Club, New York, last Saturday night, said that "the future seat of shipbuilding is to be found not on the shores of Britain, but upon the American Atlantic seaboard," which he in part explains by adding: "For twenty years I have been telling my friends in Great Britain that one American skilled workman was worth two Britons, and I say so yet." If Mr. Carnegie means that America is to become a competitor of Britain in shipbuilding, I agree; the rest is bosh. The climate alone is an immense advantage to British builders—*The Shipping World*, London.

Chicago Nautical School

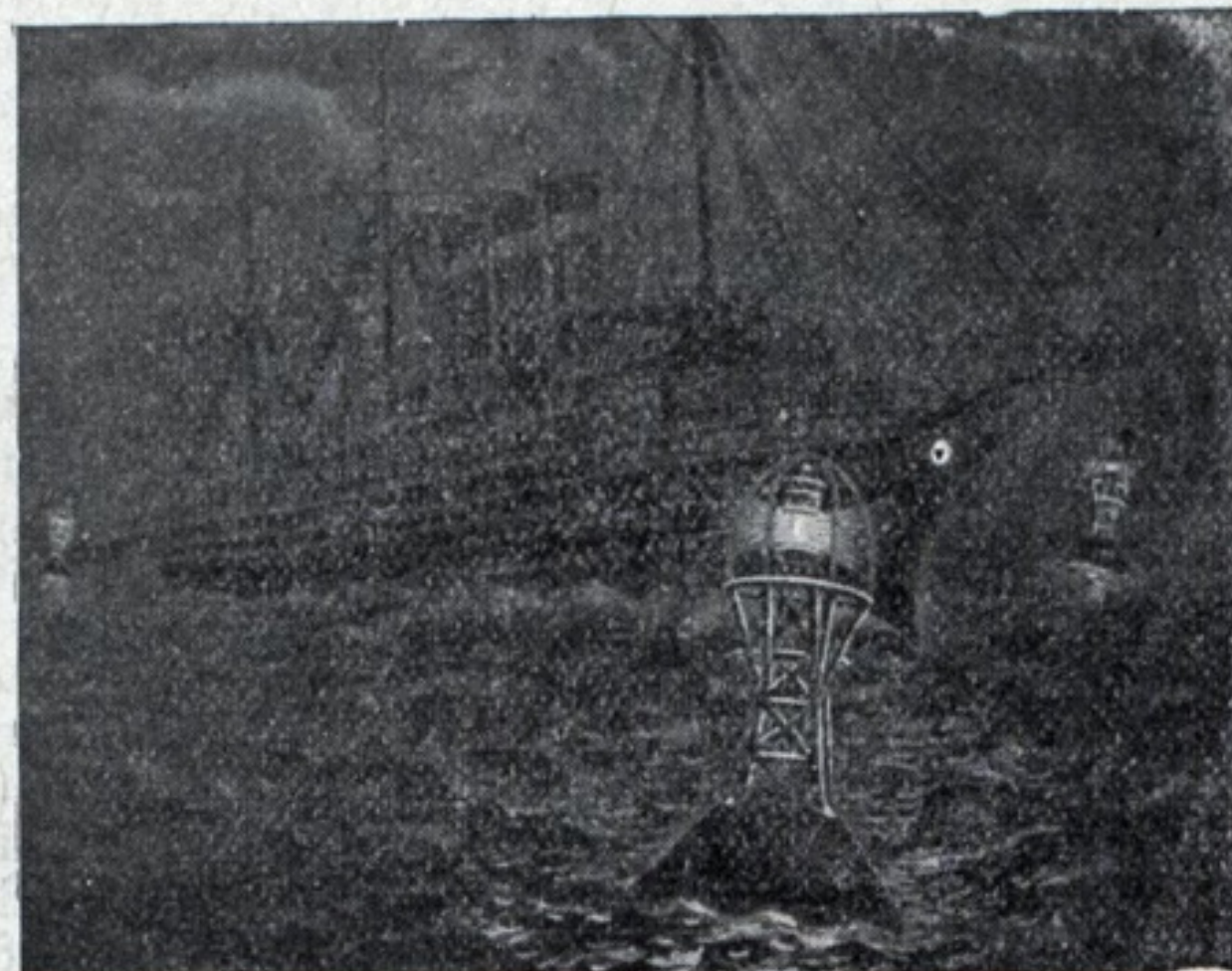
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THE FLOOR OF THE OCEANS.

The difficulties connected with the exploration of the greater depths of the sea arise principally from the fact that, in the majority of cases, the observations are necessarily indirect. At the surface of the ocean direct observation is possible, but our knowledge of the conditions prevailing in deep water, and of all that is there taking place, is almost wholly dependent upon the correct working of instruments the action of which at the critical moment is hidden from sight. It was the desire to establish telegraphic communication between Europe and America that gave the first direct impulse to the scientific exploration of the great ocean basins, and at the present day the survey of new cable routes still yields each year a large amount of accurate knowledge regarding the floor of the ocean.

The recognition of oceanography as a distinct branch of science may be said to date from the commencement of the Challenger investigations. The fuller knowledge we now possess about all oceanic phenomena has had a great modifying influence on many general conceptions as to the nature and extent of those changes which the crust of the earth is now undergoing and has undergone in past geological times. Our knowledge of the ocean is still very incomplete. So much has, however, already been acquired that the historian will in all probability point to the oceanographical discoveries during the past forty years as the most important addition to the natural knowledge of our planet since the great geographical voyages associated with the names of Columbus, Da Gama, and Magellan at the end of the fifteenth and the beginning of the sixteenth centuries.

All measurements of depth, by which we ascertain the relief of that part of the earth's crust covered by water, are referred to the sea surface; the measurements of height on the land are likewise referred to sea level. The soundings over the water surface of the globe have accumulated at a rapid rate during the past fifty years. In the shallow water, where it is necessary to know the depth for purposes of navigation, the soundings may now be spoken of as innumerable; the 100-fathom line surrounding the land can therefore often be drawn in with much exactness. Compared with this shallow water region the soundings in deep water beyond the 100-fathom line are much less numerous. Each year, however, there are large additions to our knowledge. Within the last decade over 10,000 deep soundings have been taken by British ships alone. The deep soundings are scattered over the different ocean basins in varying proportions, being now most numerous in the North Atlantic and Southwest Pacific, and in these two regions the contour lines of depth may be drawn in with greater confidence than in the other divisions of the great ocean basins. On the whole it may be said that the general tendency of recent soundings is to extend the area with depths greater than 1,000 fathoms, and to show that numerous volcanic cones rise from the general level of the floor of the ocean basins up to various levels beneath the sea surface.

It appears that considerably more than half of the sea-floor lies at a depth exceeding 2,000 fathoms, or over two geographical miles. On the Challenger charts all areas where the depth exceeds 3,000 fathoms have been called "deeps," and distinctive names have been conferred upon them. Forty-three such depressions are now known. Twenty-four are situated in the Pacific ocean, three in the Indian ocean, fifteen in the Atlantic ocean, and one in the Southern and Antarctic oceans. The area occupied by these deeps is estimated at 7,152,000 square geographical miles, or about 7 per cent of the total water surface of the globe. Within these deeps over 250 soundings have been recorded, of which twenty-four exceed 4,000 fathoms, including three exceeding 5,000 fathoms. Depths exceeding 4,000 fathoms (or four geographical miles) have been recorded within eight of the deeps, viz.: In the North Atlantic within the Nares deep, in the Antarctic within the Nares deep, in the Banda set within the Weber deep, in the North Pacific within the Challenger, Tuscarora and Supau deeps, and in

the South Pacific within the Aldrich and Richards deeps. Depths exceeding 5,000 fathoms have been hitherto recorded only within the Aldrich deep of the South Pacific, to the east of the Kermadecs and Friendly islands, where the greatest depth is 5,155 fathoms, or 530 feet more than five geographical miles, being about 2,000 feet more below the level of the sea than the summit of Mount Everest, in the Himalayas, is above it.

Our knowledge of the temperature on the floor of the ocean is derived from observations in the layers of water immediately above the bottom by means of deep-sea thermometers, from the electric resistance of telegraph cables resting on the bed of the great ocean basins, and from the temperature of large masses of mud and ooze brought up by the dredge from great depths. These observations are now sufficiently numerous to permit of some general statements as to the distribution of temperature over the bottom of the great oceans. All the temperatures recorded up to the present time in the sub-surface waters of the open ocean indicate that at a depth of about 100 fathoms seasonal variations of temperature disappear. Beyond that depth there is a constant or nearly constant temperature at any one place throughout the year. It is estimated that 92 per cent of the entire sea floor has a temperature lower than 40 degrees Fahrenheit. This is in striking contrast to the temperature prevailing at the surface of the ocean, only 16 per cent of which has a mean temperature under 40 degrees Fahrenheit. The temperature over nearly the whole of the floor of the Indian ocean in deep water is under 35 degrees Fahrenheit. A similar temperature occurs over a large part of the South Atlantic and certain parts of the Pacific; but at the bottom of the North Atlantic basin and over a very large portion of the Pacific, the temperature is higher than 35 degrees Fahrenheit. In depths beyond 2,000 fathoms the average temperature over the floor of the North Atlantic is about 2 degrees Fahrenheit above the average temperature at the bottom of the Indian ocean and South Atlantic, while the average temperature of the bed of the Pacific is intermediate between them.

The deep sea is a region of darkness as well as of low temperature, for the direct rays of the sun are wholly absorbed in passing through the superficial layers of water. Plant life is in consequence quite absent over 93 per cent of the bottom of the ocean, or 66 per cent of the whole surface of the lithosphere. The abundant deep-sea fauna, which covers the floor of the ocean, is therefore ultimately dependent for food upon organic matter assimilated by plants near the surface, in the shallower waters near the coast lines, and on the surface of the dry land itself. It thus happens that at the present time over nearly the whole floor of the ocean we have mingled in the deposits the remains of organisms which had lived under widely different physical conditions, since the remains of organisms which lived in tropical sunlight and in water at a temperature of above 80 deg. Fahrenheit all their lives, now lie buried in the same deposit on the sea floor, together with the remains of other organisms which lived all their lives in darkness and at a temperature near to the freezing point of fresh water. The marine deposits now forming over the floor of the ocean present many interesting peculiarities according to their geographical and bathymetrical position. On the continental shelf, within the 100-fathom, lime, sands and gravels predominate, while on the continental slopes beyond the 100-fathom line blue muds, green muds, and red muds, together with volcanic muds and coral muds, prevail—the two latter kinds of deposits being, however, more characteristic of the shallow water around oceanic islands. The composition of all these terrigenous deposits depends on the structure of the adjoining land. In them the evidences of the mechanical actions of tides, of currents, and of a great variety of physical conditions may almost everywhere be detected, and it is possible to recognize an accumulation of materials analogous to many of the marine stratified rocks of the continents, such as sandstone, quartzites, shales, marls, green-sands, chalks, limestones, conglomerates and volcanic grits.

With increasing depth and distance from the continents the deposits gradually lose their terrigenous character, the

particles derived directly from the emerged land decrease in size and in number, the evidences of mechanical action disappear, and the deposits pass slowly into what have been called pelagic deposits at an average distance of about 200 miles from continental coast lines. Our knowledge of the marine deposits is limited to the superficial layers; as a rule the sounding tube does not penetrate more than six inches or eight inches, but in some positions the sounding tube and dredge have been known to sink fully two feet into the deposit. Sometimes a red clay is overlaid by a globigerina ooze, more frequently a red clay overlies a globigerina ooze, the transition between two layers being either abrupt or gradual. In some positions it is possible to account for these layers by referring them to changes in the condition of the surface waters, but in other situations it seems necessary to call in elevations and subsidences of the sea floor. There is a striking difference between the average chemical and mineralogical composition of terrigenous and pelagic deposits. It would be extremely interesting to have a detailed examination of one of these deep holes where a typical red clay is present, and even to bore some depth into such a deposit, if possible, for in these positions it is probable that not more than a few feet of deposit has accumulated since the close of the tertiary period. One such area lies to the southwest of Australia, and its examination might possibly form part of the program of the approaching Antarctic explorations.

It has already been stated that plant life is limited to the shallow waters, but fishes and members of all the invertebrate groups are distributed over the floor of the ocean at all depths. The majority of these deep-sea animals live by eating the mud, clay, or ooze, or by catching the minute particles of organic matter which fall from the surface. It is probable not far from the truth to say that three-fourths of the deposits now covering the floor of the ocean have passed through the alimentary canals of marine animals. These mud-eating species, many of which are of gigantic size, when compared with their allies living in the shallow coastal waters, become in turn the prey of numerous rapacious animals, armed with peculiar prehensile and tactile organs. Many deep-sea animals present archaic characters; still the deep sea cannot be said to contain more remnants of fauna which flourished in remote geological periods than the shallow and fresh waters of the continents. Indeed, king-crabs, limulus, trigonias, Port Jackson sharks, Ceratodus, Lepidosiren, and protopterus probably represent older faunas than anything to be found in the deep sea.—Sir John Murray before the British Association.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	1,404,000	105,000	132,000	72,000	779,000
" afloat	401,000	205,000			
Chicago	15,028,000	5,237,000	1,310,000	189,000	21,000
" afloat	85,000	1,570,000	158,000		
Detroit	482,000	331,000	75,000	9,000	33,000
Duluth	8,703,000	647,000	169,000	384,000	159,000
" afloat	248,000				
Fort William, Ont.	3,084,000				
Milwaukee	263,000			12,000	22,000
" afloat			477,000		
Montreal	54,000	20,000	351,000	14,000	28,000
Port Arthur, Ont.	217,000				
Toledo	1,069,000	1,384,000	170,000	6,000	
Toronto	49,000		4,000		47,000
Grand Total	53,220,000	14,814,000	5,743,000	1,146,000	1,422,000
Corresponding Date, 1899	29,618,000	31,800,000	8,676,000	1,541,000	2,772,000
Increase		105,000		27,000	
Decrease	585,000		225,000		84,000

While the stock of grain at lake ports only is here given the total shows the figures for the entire country except the Pacific Slope.

OFFICERS LICENSED.

The following is a list of Masters, Pilots, and Engineers who received original licenses during the year 1899, at Grand Haven, Mich.

Masters and Pilots.—Butler, F. E.; Cross, B. A.; Rydt, Henry F.

First-class Pilots.—Mosier, Charles L.; Martin, Michael; Plum, Henry C.; Risto, Edward; Robinson, William; Smith, Henry J.; Upham, Lucien B.; Williams, Leonard; Wright, Charles.

Second-class Pilots.—Harting, William; Johnson, Erick; Miller, Edward W.; O'Connell, Bernard; Purkiss, George; Robertson, Fred A.; Sanders, Joseph; Vaxter, William H.; Verduin, Caleb.

Chief Engineers.—Backie, Martin; Devor, Benjamin; Doyle, John F.; Demming, Alton S.; Grilick, Frank; Grottemat, Henry G.; Grey, John C.; Martin, Thomas R.; Sanford, Isaac H.; Sylvester, Samuel.

Engineers in Charge of Steamers of 100 Tons and under, and Over 10 Tons.—Hoyt, Clarence C.; Green, Michael; McWayne, James R.; Walsma, John; Walt, John.

First Assistant Engineers.—Birch, Charles A.; Boswell, James G.; Beetley, Frank E.; Biddle, Walter A.; Flagstad, Mat.; Gordon, Walter; Hegerty, Hugh; Knudson, Wilhelm; Lawrence, Jesse E.; Layman, George F.; Middleton, George; Owen, George E.; Oliva, August; Poindexter, William B.; Rounds, Walter L.; Sterling, Edward; Wells, Albert; Webb, Eugene.

Joint Pilots and Engineers.—Howe, Frank W.; Moorehouse, Henry J.; Palmer, Francis N.; Stanton, Henry T.; Tomlin, Charles I.

TREASURY DECISIONS.

ALIEN SEAMEN ARE NOT SUBJECT TO INSPECTION UNDER IMMIGRATION LAWS.

TREASURY DEPARTMENT,
OFFICE OF COMMISSIONER-GENERAL OF IMMIGRATION,
WASHINGTON, D. C., February 6, 1900.

DUES ON AMERICAN VESSELS IN CANADA.

Steamboat Inspection Dues Levied on American Vessels in Canada Since January 1, 1898, Will Be Refunded.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION,
WASHINGTON, D. C., February 9, 1900.

SIR: This office is officially advised that the Canadian government has authorized a refund to the owners of American steam vessels of tonnage dues levied since January 1, 1898, on American steamboats arriving in Ontario from United States ports. The dues in question are understood to have been such as were collected by the Canadian authorities under the steamboat inspection act of Canada.

Respectfully,
Collector of Customs, Buffalo, N. Y. E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, Mobile, Ala.

SIR: The Department acknowledges the receipt of your letter of 30th ultimo, inclosing copy of an opinion handed down by the Hon. R. T. Toulmin, United States district judge, sitting in the circuit court of the United States for your district, on the construction of the act of March 3, 1891.

It is noted that in your said letter you state that the Department letter of November 2, 1899 (Treasury decision 21724), holds that "crews of foreign vessels are subject to the immigration laws and to the inspection provided and required as in the case of immigrants." This statement is erroneous; the Department never held that the crews of foreign vessels were subject to the immigration laws, but, on the contrary, that an alien seaman was not subject to such inspection so long as he continued on the ship's articles. Your action, therefore, in regard to the notice given to the

master of the vessel of whose crew the seaman was a member, was improper. In addition to this error, you also acted without authority in refusing clearance papers to said vessel. If you will read section 10 of the act of March 3, 1891, under which you professed to be acting, you will see that the refusal of a vessel or neglect to detain thereon an alien returned to the master or owner thereof, is declared to be a misdemeanor, punishable by fine. The proper course, therefore, in such a case would be through the United States courts, which upon sufficient evidence being produced to show that the alien was unlawfully permitted to escape, would declare the master or owner of the vessel guilty of a misdemeanor, and impose a fine for such offense. The said section then provides, as a means of collecting said fine, that "any such vessel shall not have clearance from any port of the United States while any such fine is unpaid."

Under these circumstances, it is clear that you were doubly in error—first in taking cognizance under the immigration laws of the member of a crew of a foreign vessel; and, second, in arbitrarily withholding clearance papers before a fine had been legally imposed and the master of the vessel had refused to pay such fine.

These being the points at issue, the court could not have done otherwise than issue the writ of mandamus prayed for, its action in this respect not being dependent in any way upon its construction of the meaning of the word "alien" as used in the act approved March 3, 1891.

Respectfully,
T. V. POWDERLY,
Commissioner-General.
Approved: H. A. TAYLOR, Assistant Secretary.

MARINE PATENTS.

Patents on marine inventions issued February 13, 1900. Reported specially for the MARINE RECORD. Complete copies of patents furnished at the rate of ten cents each.

643,146. Steamboat wheel. J. C. Mederer, Allegheny, and P. F. Slaterry and G. C. Fuss, Pittsburg, Pa.

643,171. Means for elevating and lowering ships. Florian Tentschert and Ludwig Czischack, Vienna, Austria-Hungary.

643,176. Water wheel. C. H. J. Wiese, Hamburg, Germany.

643,197. Ship's davit. J. W. McKinnon, New York, N. Y.

643,331. Towing machine. Frederick Metcalf, Cleveland, Ohio, assignor to the Chase Machine Co., same place.

643,407. Bridge gate. Paul Gfoerer, Evanston, Ill., assignor of one-half to N. P. Hoffman, same place.

643,444. Paddle wheel. J. S. Allison, Portland, Ore.

643,464. Hand propelling mechanism for boats. Frank Burns, Philadelphia, Pa.

643,488. Dam, retaining wall, breakwater, etc. J. S. Fielding, Pittsburg, Pa.

643,490. Boat driving gear. J. A. Freund, New York, N. Y.

643,557. Wave motor. S. P. Swearingen, Pasadena, Cal.

643,608. Wave motor. G. F. A. Roell, Los Angeles, Cal., assignor of one-half to J. O. Orth, same place.

PLEASING "RECORD" REMINDERS.

The twenty-second annual issue of the MARINE RECORD is a beautiful number, and chock full of meaty news, with many illustrations. It is no wonder the RECORD is a favorite with shipmen generally.—"The Times," Lorain, O.

The MARINE RECORD maintains its reputation as the leading authority on marine matters on the chain of Great Lakes. The MARINE RECORD in its 22nd annual illustrated number, is fully up to the usual excellence of former publications from its presses.—"The Sarnia Post."

The Cleveland MARINE RECORD has issued its 22nd annual special illustrated number, which is fully up to the

usual excellence of former publications from its presses. The MARINE RECORD maintains its reputation as the leading authority on marine matters on the chain of Great Lakes.—"The Times," Port Huron, Mich.

The annual issue of the MARINE RECORD is a special one in commemoration of the completion of its twenty-second year of publication. It is handsomely illustrated in colors. It exceeds in excellence any previous numbers, despite the fact that those were excellent editions.—"The Leader," Cleveland, O.

The most important publication representing the shipping and mercantile interests of the Great Lakes, the MARINE RECORD, of Cleveland, O., prints the following kind remarks regarding the New York Maritime Register, which we fully appreciate: * * * —"The New York Maritime Register, Feb. 14, 1900.

The 22nd annual edition of the MARINE RECORD, Cleveland, O., bears date of Jan. 18, and is a most creditable production. The number is a large and handsomely illustrated one and should be in the hands of all who are interested in the marine of the Great Lakes.—"The American Shipbuilder," New York.

The Cleveland MARINE RECORD has issued its 22nd annual special illustrated number, which is fully up to the usual excellence of former publications from its presses. The MARINE RECORD maintains its reputation as the leading authority on marine matters on the chain of Great Lakes.—"The Lambton County Post, Sarnia, Ont.

The annual issue of the MARINE RECORD is a special one in commemoration of the completion of its twenty-second year of publication. It is handsomely illustrated in colors, and the articles are from the spicy pen of Capt. John Swainson. It exceeds in excellence any previous numbers, despite the fact that those were excellent editions.—"Post-Herald," Conneaut, O.

The twenty-second annual edition of the MARINE RECORD, Cleveland and Chicago, is an admirable issue of an excellent journal, which is receiving much commendation recently for its proper and effective insistence upon the maintenance of lake levels, and for the practical good sense which characterizes its discussion of that important matter.—"The Tradesman," Chattanooga, Tenn.

The twenty-second annual edition of the MARINE RECORD has been published. It is devoted to navigation, commerce, engineering and science. The RECORD is published by the MARINE RECORD Publishing Co., at the Western Reserve Building, Cleveland, O. The current number for January is ably edited, replete with news, and its advertising columns show financial prosperity.—"The Commercial List and Price Current," Philadelphia, Pa.

The twenty-second annual edition of the MARINE RECORD is a most substantial edition of forty-two pages. It is full of interesting and fresh marine news and has many excellent half-tone illustrations, adding much to its value as a souvenir. The page of excellent likenesses of the ex-presidents of the Lake Carriers' Association is one of the features of the publication. The covers are of heavy enameled paper, in the center of which appears a small cut illustrative of engineering, commerce, science and navigation, while at the corners appear four excellent half-tones of the old brigantine, the side-wheeler, the modern ocean greyhound and an up-to-date battle-ship. The edition is on the whole a most creditable one.—"The Evening News," Saginaw, Mich.

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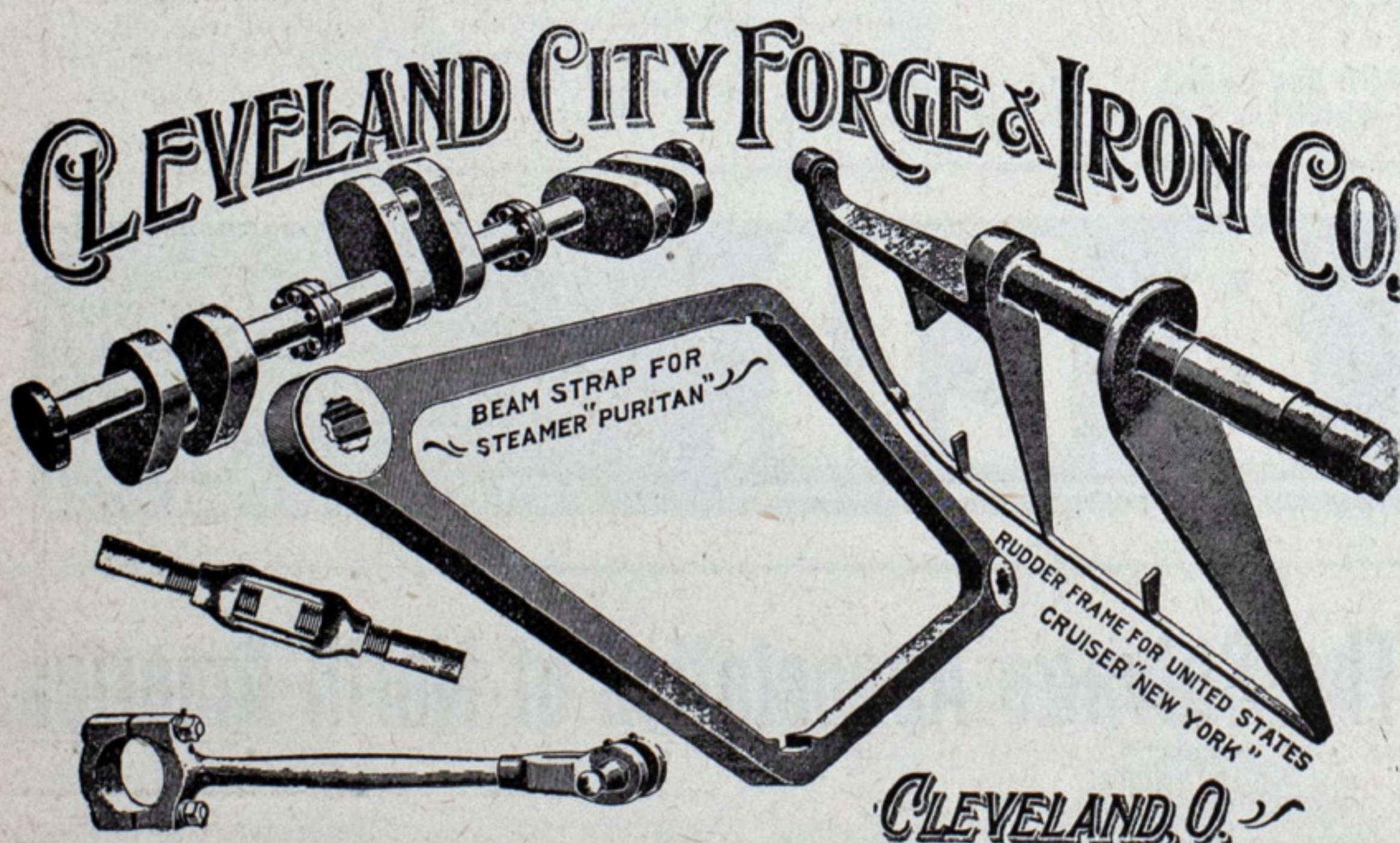
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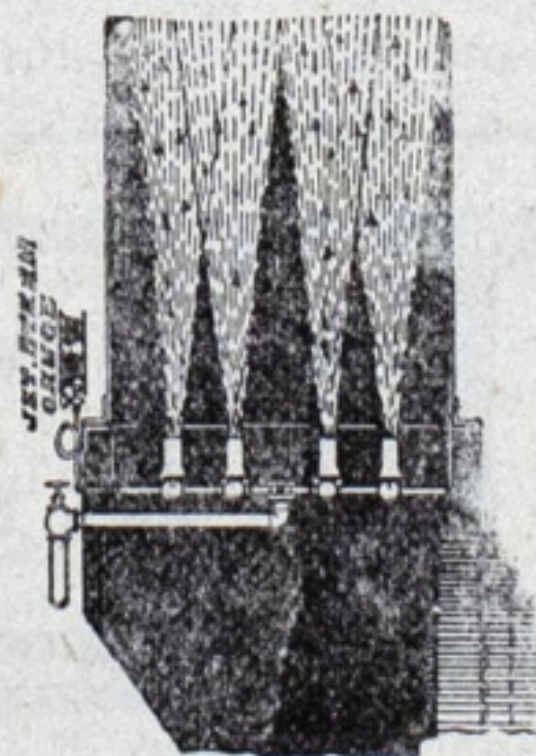
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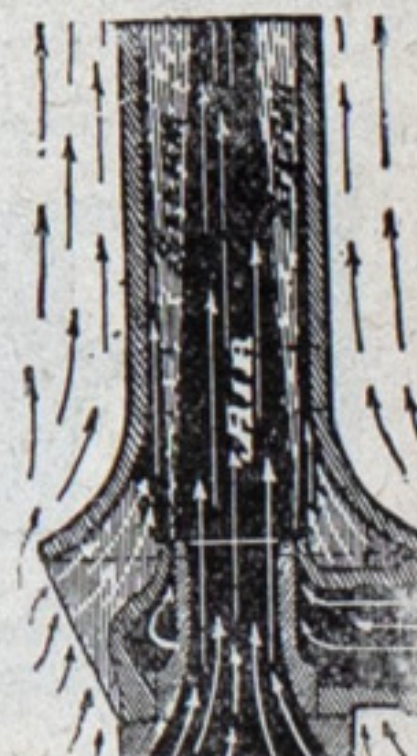
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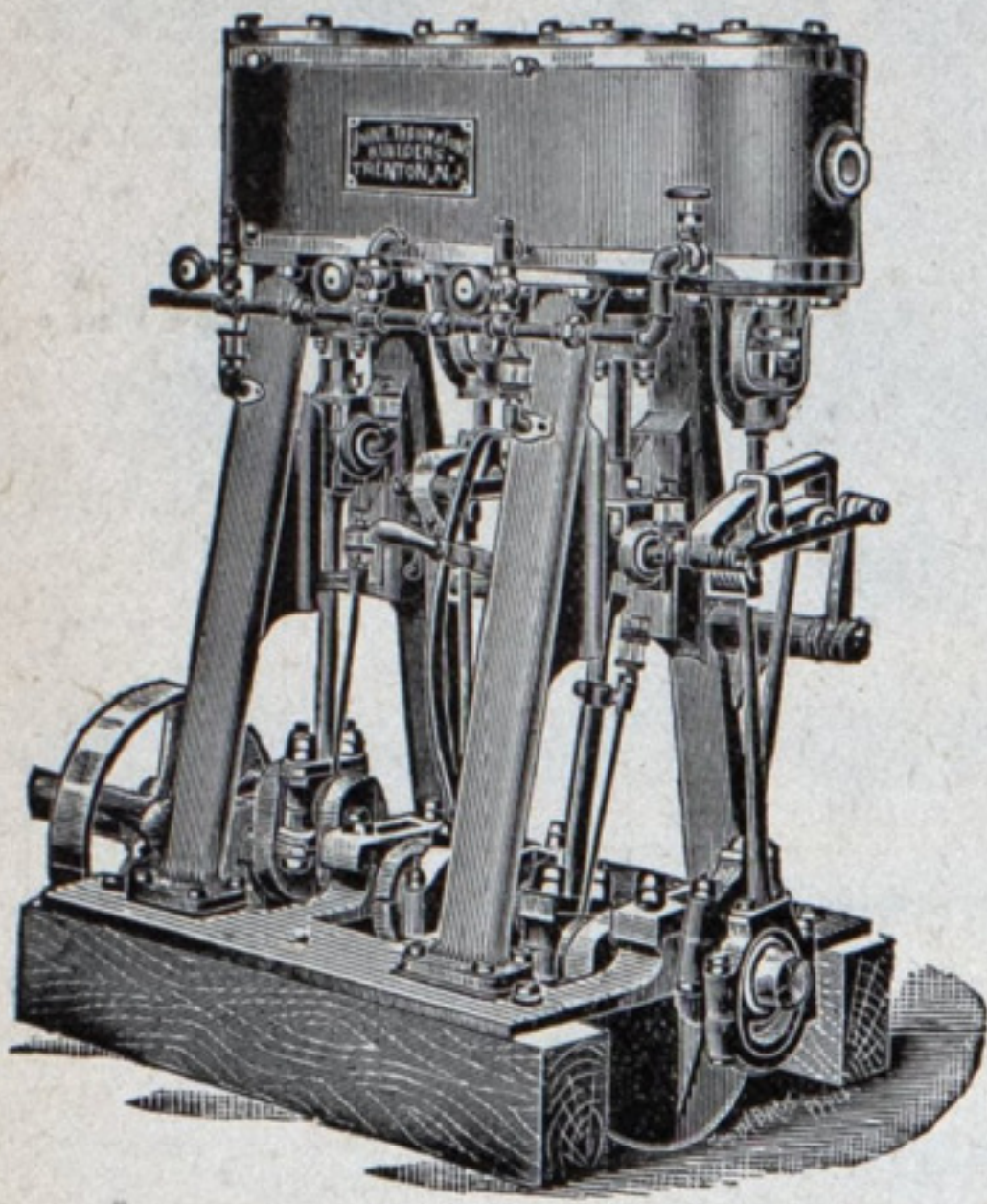
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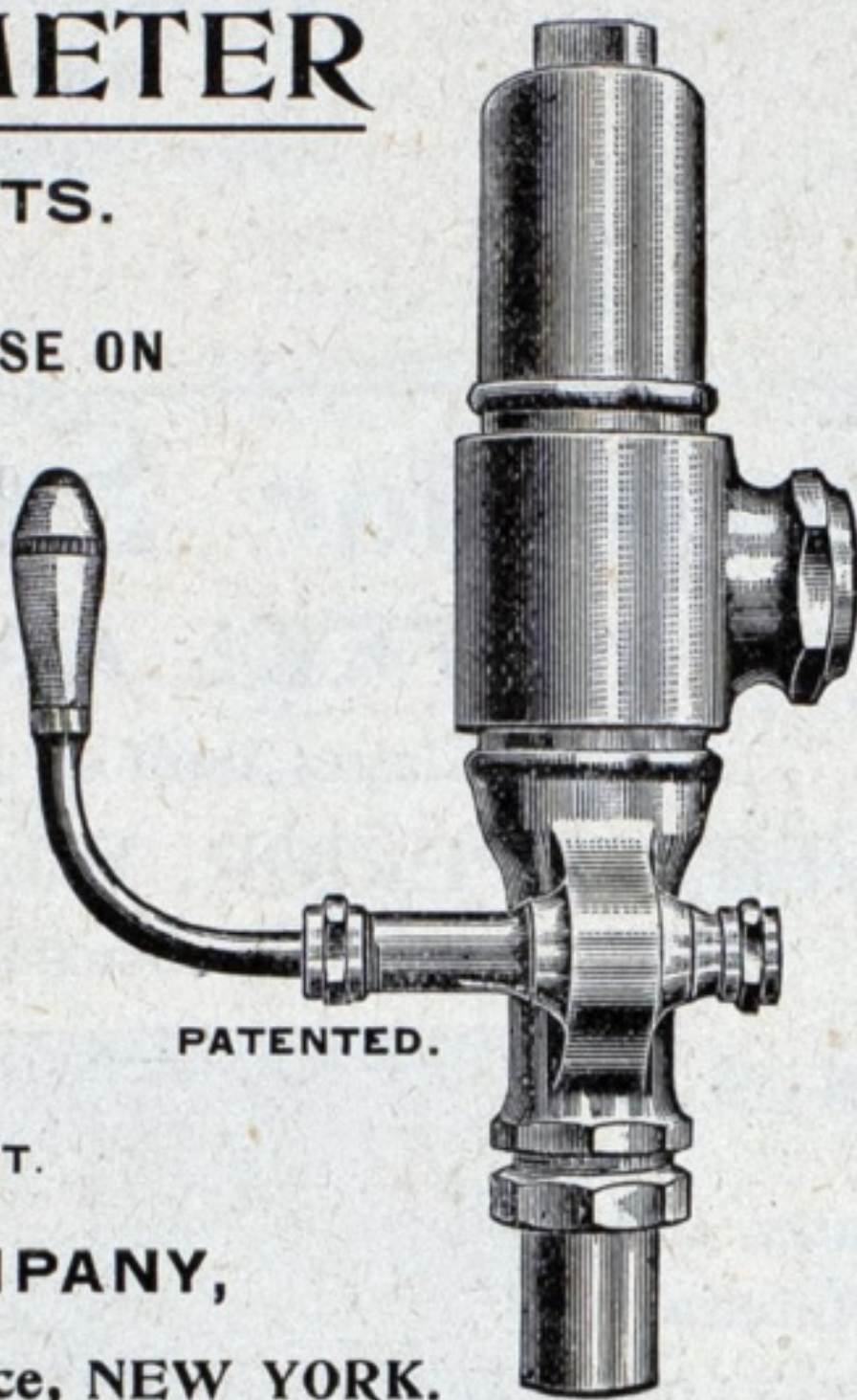
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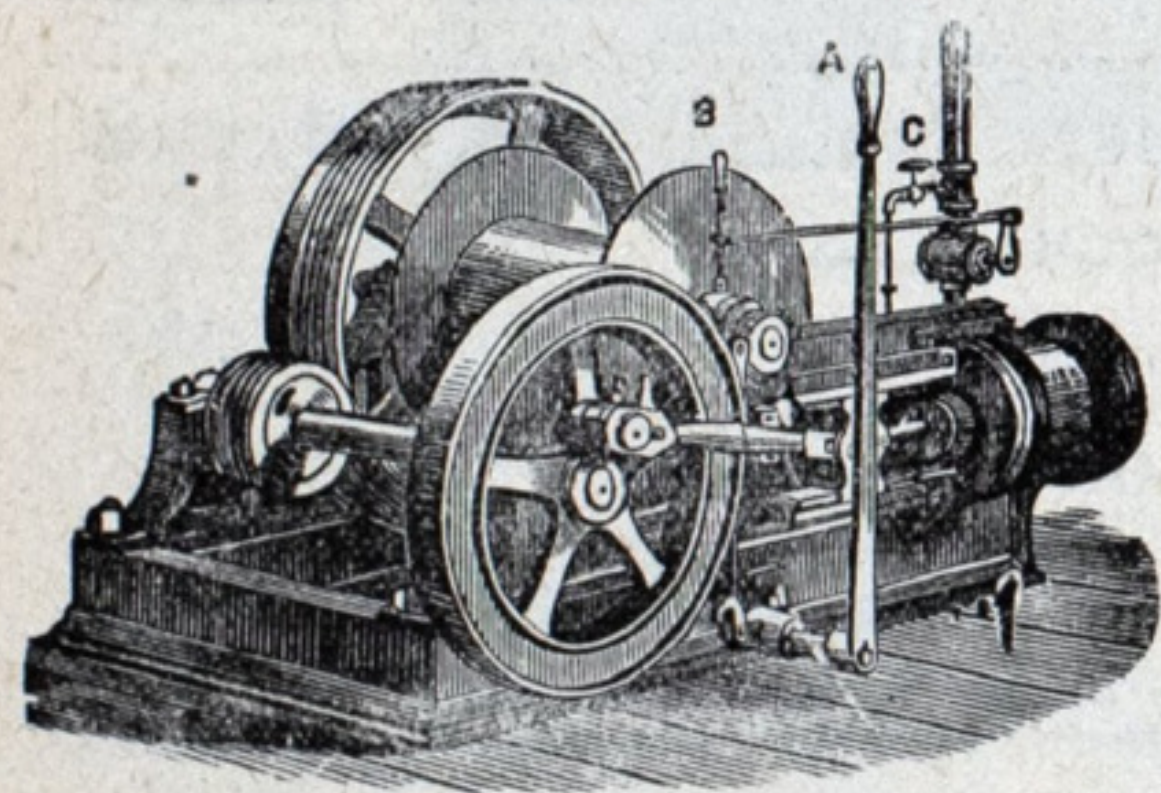
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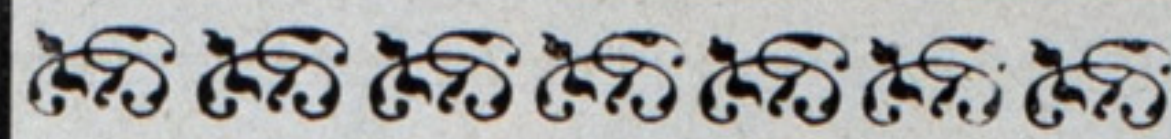
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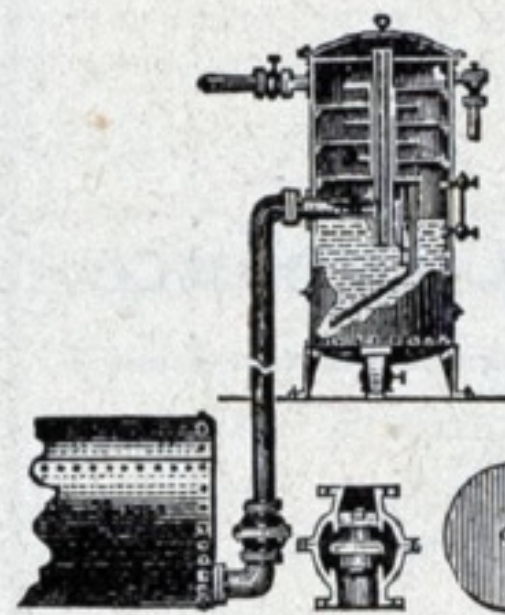
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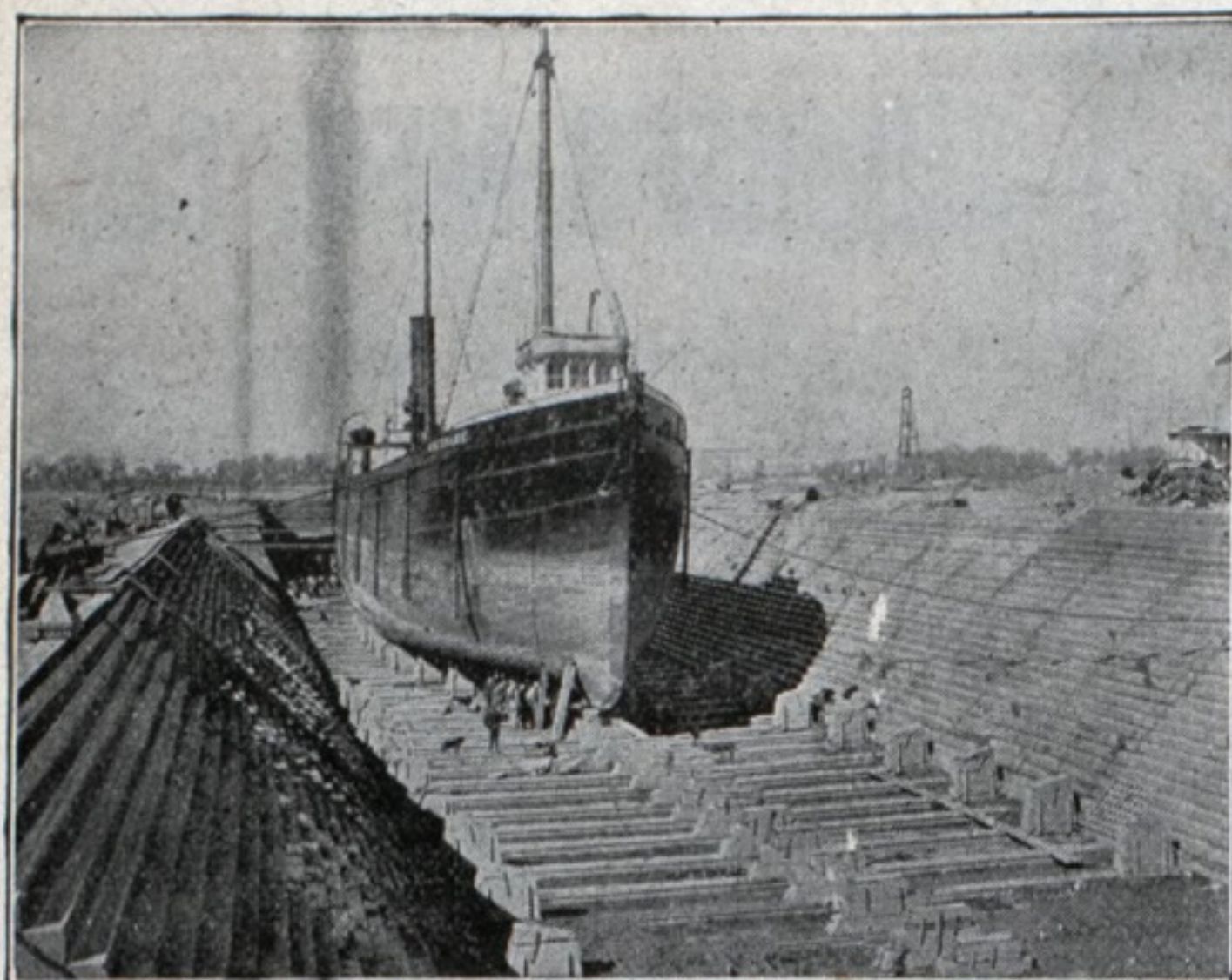


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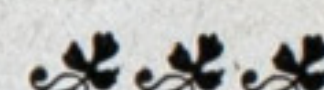
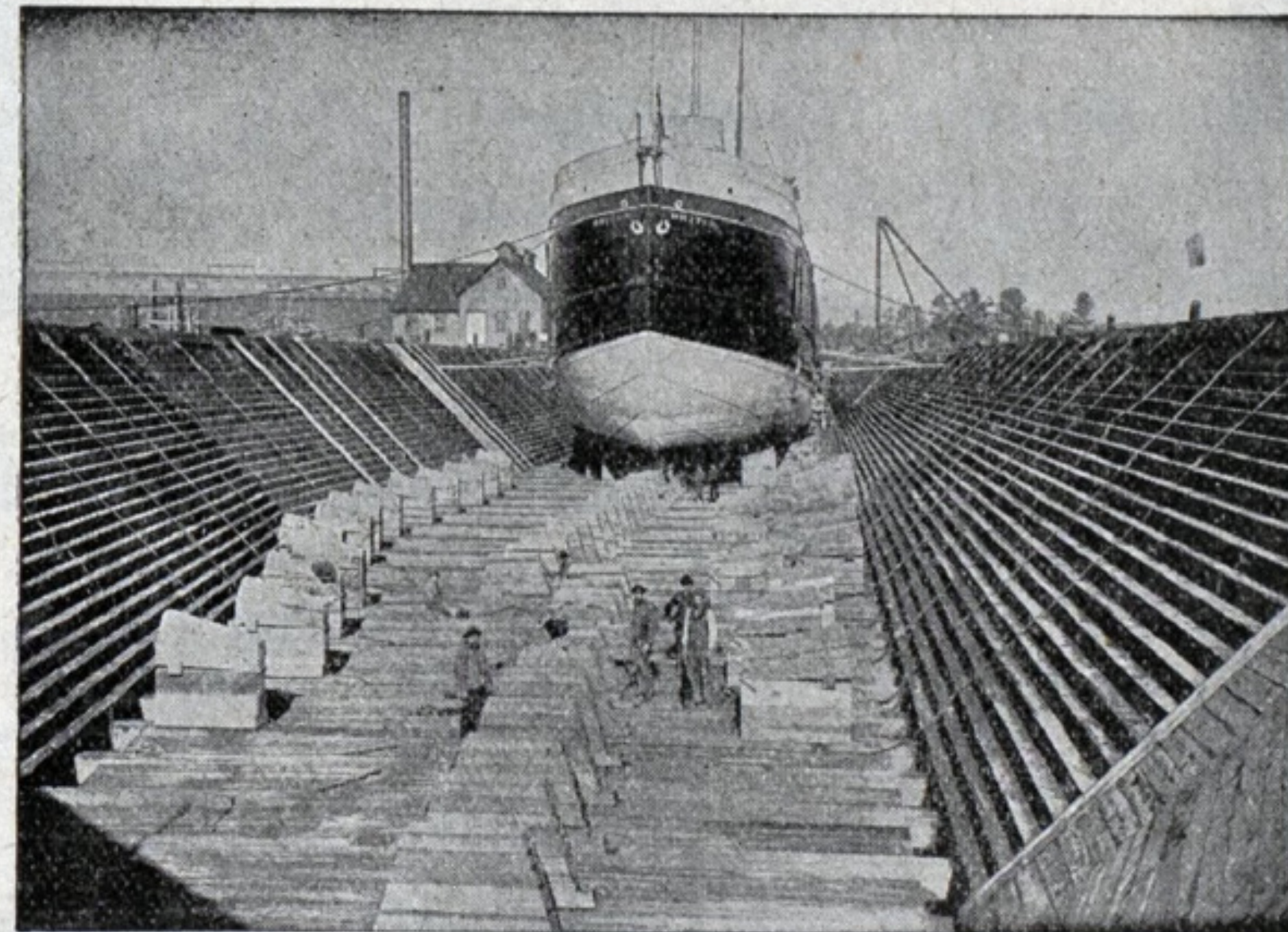
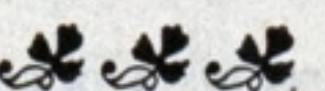
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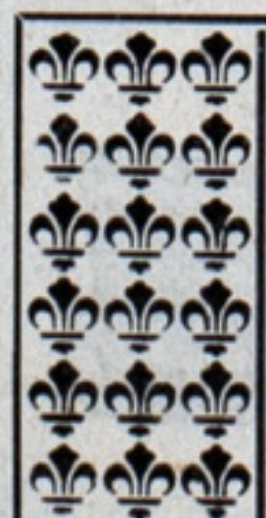
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